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CONVENTION OF INDEPENDENT TELEPHONE COMPANIES.

An important meeting of anti-Bell telephone interests was held in Detroit June 22 and 23, about 200 independent telephone companies being represented. Judge Jas. M. Thomas of Chillicothe, O., called the meeting to order, and after a brief address introduced Judge R. S. Taylor of Ft. Wayne, Ind., one of the government counsel in the Berliner suits, who rehearsed the familiar facts with regard to the government suits to annul the Berliner patent, and stated that the decision of the United States Supreme Court has simply left things as they were before, it having merely declined to cancel the Berliner patent on the ground of fraud. He compared the attempt to extend the life of the Bell Telephone monopoly to the action by which, according to Scripture, Jacob, after working seven years to get one daughter, was made to work another seven before he could get her. The American Bell Tel. Co. had been like Jacob's father-in-law, and was the most successful stock raiser that ever sheared lambs; and in the same way, it now expected the people of the United States to work for it another seventeen years after having already done so for a full term. The history of this affair, he regarded as one of the most extraordinary things in history. The telephone was unmatched in the art of invention during the last fifty years, for nothing came so close to the people; but it had been fully paid for. More dollars might have been spent on more elaborate electrical apparatus, but the American people, in view of the cheapness and simplicity of the mechanism, had paid more for the telephone than for any other invention of the last half century.

As to the objects of the convention, it had been stated in some of the newspapers that the main or sole idea was to fight the American Bell Tel. Co. The Berliner patent, as it stood, expired in 1903, but he was ready to express his opinion, though it might not be sustained, that the patent was of no intrinsic value, and would be declared against on intrinsic grounds of demerit, as it was already by Judge Carpenter. That

was not disturbed by any action of the Supreme Court, which simply held that if the government had been lax in the Patent Office, the Bell Co. ought not to be blamed, but should make the best it could for itself out of the situation. In other words, an applicant in the United States Patent Office was entitled to get all the good he could out of the delay of his application.

The decision of the Supreme Court left the case exactly where it was when the



L. H. DAGGETT, President Union No. 1.

patent was issued. Now the validity of the Berliner patent would be tried in exactly the same way and upon exactly the same proceedings as the validity of patents in general are tried, and nothing which has been said or done by the Supreme Court puts any obstacle whatever to the full and thorough and complete trial of all questions which can be raised or have been raised against the validity of the Berliner patent.

As to what would happen, it was impossible for himself or anyone to say. He

had confidence in justice and truth, and in the final victory of that which ought to be. He knew a great deal about the patent, and without any sort of question it was the most unblushing, bare-faced, thinnest, inexcusable, abominable fraud that ever received the sanction of government. It had not one single redeeming feature about it. It had not given the world one single idea about the telephone. It had not advanced the progress of the world one minute. The telephone art was to-day just where it would have been if Mr. Berliner had never been born. There was not underlying the patent one single particle of merit. Nobody had ever said there was, not even the counsel for the Bell Co. No court had ever decided that it had any merit. The only court that had ever said a word about its intrinsic merit and its legal validity was the United States Circuit Court for the District of Massachusetts, and that court had decided it was void. The Supreme Court of the United States had not undertaken to pronounce on the validity of the patent. It went no further than to say that for the particular reason of alleged fraud in its issuance the court had no reason to interfere and would not. Everything else was left out of consideration.

Judge Taylor said that he regarded this talk as probably outside of the proper business of the convention, but he had alluded to it simply because it was in his mind, because it had been talked about, because there had been misunderstandings in regard to it, and because it was desirable they should have the truth—at least as he understood it.

They were met together as a representative commercial convention of a great business, and they had done wisely in coming together and organizing. It was the American instinct of self-government to do so, and when several hundred men embarked in a business of a given character got together, they quickly adopted laws and elected officers and set up a system of government among themselves. They could now exchange ideas, experience and facts, and disseminate to each other information needed in the conduct of the business. It was to the interest of every one of the local

exchanges to be represented, and there were none of them with antagonizing interests or rivalry. The subscriber to the independent system in Detroit would use that in Ft. Wayne, as he did, and it would do the subscriber good to feel that they had their mouth to that kind of a hole. The telephone business, moreover, was one in respect of which very much had still to be learned in the handling of the staff, the traffic, the lines and other details, and that alone was enough to justify the existence of such an association. In conclusion Judge Taylor emphasized the influence they might have on legislation and on the improvement of the patent law and system, if they would take the matter in hand, and urged them to proceed with their great work of popularizing the telephone everywhere, and thus becoming benefactors to the whole American people.

At the conclusion of Judge Taylor's address, which was received with great applause, Judge Thomas reviewed the telephone situation as it existed at the present time. He stated that more than \$20,000,000 has been invested in the independent telephone enterprise of this country, and the business had only started. The Bell Tel. Co. were given an exclusive monopoly under our patent laws for seventeen years, the full limit such protection is granted. Why should their monopoly be extended? Men all over the country who have studied the patent situation know that the rights of the American Bell Tel. Co. under their fundamental patents have expired. We claim now the right under our government to use those inventions for the public good. Why should these rights be denied us, or why should capital invested by men who are well aware of these rights be jeopardized and their business threatened by a company whose rights have long since expired to hold a monopoly under those patents? Why should we longer be annoyed by notices and threats made in newspapers to refrain from using this invention.

It was predicted by every important journal in this country, in the early days of the telephone, that it would succeed and do away with the telegraph. The Western Union Telegraph Co. must have believed that this prediction would come true, for we find them in the great lead to get control of patents. It seems that they risked their fortunes with Edison, while Bell, Blake, and Berliner were gathered in by the American Bell Tel. Co. Then, after a brief struggle for the telephone field, we find an agreement was made between these two great corporations in which it was provided to the satisfactory arrangements of both that one should retire from the telephone field and should receive the consideration of a few million dollars. So the prophets' prediction failed. The telegraph business continued as before. The telephone was conducted so quietly that the people never dreamed of the immense fortunes which were being accumulated under these patents and under these arrangements, until their attention was called to it by this independent war. We believe that the contract made between the Western Union Tel. Co. and the American Bell Tel. Co. has done more to retard the universal progress of quick communication than anything that has ever happened since the invention of the telegraph and the telephone. So soon as this battle is over, the people will be surprised at the

growth which rapid communication will make. Messages will be transmitted over telephone wires and recorded at the receiving end, delivered to the party addressed and answer returned, recorded and delivered without causing people to wait for lines and to get parties to the phone. Time will be saved, more words will be transmitted at the same expense and the commercial world will feel the advantage of this form of communication.

It will not be long until the telephone is a very essential feature of our post office department. So much letter writing is burdensome, and with all the advantages of our fast trains, we are impatient with this manner of communication. We would be better pleased and time would be saved if for a reasonable sum of money we could talk to those with whom we have business or with whom we desire to communicate. Taking, then, the vast territory, our great population of 70,000,000 of people, this great, growing demand for quick communication and the probability that it may in the near future be adopted as the greatest department of our postal system, the field is so great that it seems folly for any one company or one corporation to stop progress by giving time to quarreling, contention and litigation. There is still room for more to enter this great field, and one need have no fear of competition in the next half century.

If, however, there is not in this view of the case sufficient to exact peace, then let the war go on. The American Bell Telephone Co. will find that this battle is their Waterloo. They will find that others have been thinking while its officers have been scheming to make money. They will find, too, that our courts will uphold the law, if brought under the state of facts proven. They will find also that it will not be trying the suit of the government for the cancellation of a patent. They will find that evidence exists, which, when the proper time comes, will be shown in the court, and they will find that the court will decide as the judges presiding over them are bound to do under oath, according to the law and the facts. And while they boast of their victories, and say nothing of their numerous defeats recently; and while they boast of their great technical lawyers, of their many millions of money and their numerous expert witnesses who have been retained, still, they will find that in this great country there are others equally as learned, who are ready and willing to espouse the cause of this movement, knowing that a great victory will reward their effort. It remains, then, for the American Bell Telephone Co. to say what policy it will pursue, but it should understand, whether in peace or war, we will meet them, and in peace will greet them, and in war will surely defeat them.

During the two days the convention was in session a permanent organization was effected, a constitution and by-laws adopted and officers elected. The association will be known as the Independent Telephone Association of America, and its objects, as stated in Article II. of the constitution, are: "First: The protection of all independent telephone interests of common concern to the members of the association. Second: The protection of subscribers to tele-

phone and apparatus operated by members of the association. Third: The bringing about of a reasonable charge for tolls and the rental of telephones, so that the telephone may be within the reach of the masses of the people. Fourth: The bringing about of a complete system of intermunicipal communication and long-distance trunk lines."

Membership in the association costs \$10, and each exchange must pay 50 cents for each subscriber, and 50 cents per mile for each mile of toll line. As the number of independent telephones in use is from 150,000 to 1,500,000, with about 2,500 miles of toll line, the association will have a large fund with which to fight the Bell Telephone Co. if that company declares war. The president of the association will receive \$2,500 per year, the secretary \$1,000, and the treasurer \$750. The officers will consist of president, three vice presidents, a secretary, two assistant secretaries, a treasurer, and an advisory board, consisting of nine members, two of whom shall be the president and secretary, together with seven members, who shall be elected by the executive committee. The executive committee consists of two members from each State.

Judge Thomas of Chillicothe, O., was elected president; H. C. Young of Columbia, first vice president; E. K. Hines of Oskaloosa, Ia., second vice president; T. Fricker of Ashtabula, O., third vice president; W. J. Vesey of Ft. Wayne, Ind., secretary; Z. W. Bears of Ft. Wayne, Ind., first assistant; D. C. Dow of Cobleskill, N. Y., second assistant; L. A. Carr of Durham, N. C., treasurer.

DETROIT TELEPHONE COMPANY.

The Detroit Telephone Co., now well established as a rival to the Bell, is meeting with remarkable success. It is the largest independent telephone company in the world. The switchboard is 176 feet long, and has accommodations for 6,000 metallic circuits. It is arranged in eighty sections of 150 drops each, each section requiring two operators. An average speed of less than 15 seconds to a connection with comparatively untrained operators, is now attained. A branch exchange of 1,000 subscribers is being installed, and two more similar exchanges are being planned. The lines are run in conduits in the business portion of the city, cables of 100 circuits being uniformly used. On July 1st about 4,000 telephones were connected and in running order, and by August 1st it is expected that all of the 4,700 phones contracted for will be in place, and the Bell people will find themselves in an inferior position in the telephone business in a town where they have long ruled supreme at exorbitant prices.

The Detroit Co. has made a uniform price of \$25 for residences and \$40 for business houses, and has taken a three years' contract in every case. Metallic circuits over copper wires are furnished to every one, and the boxes are of oak, large and handsome.

The phone used by the Detroit company is largely the invention of its own engineer, who has patents pending that he declares will make them absolutely independent of the Bell.

In connection with the Detroit company there has been formed the State Line Telephone Co., which is rapidly pushing copper toll lines into the State.

The only one completed is to Mt. Clemens, with a cut of 60 per cent in the tolls. Big gangs of men are now setting poles between Detroit and Monroe for use on the Toledo line, and an equally large force is pushing for Jackson, via Ypsilanti and Ann Arbor. Every line built will connect with the Detroit line, and furnish a fine income under traffic agreements. The new system is an unqualified success.

THE NIAGARA POWER TRANSMISSION LINE.*

By J. G. White.

The possibilities of the utilization of the almost infinite power of the mighty cataract has been dreamt of and written about ever since the days when the old French monks first attempted to convert the Indians living in this and more western regions.

My first personal knowledge as to the then proposed transmission line between Niagara Falls and Buffalo dates from the autumn of 1894, when the White-Crosby Company was asked to prepare and submit detailed plans, specifications and proposals for its construction. It was then found that the engineers of the Westinghouse and General Electric companies had both recommended the construction of circuits of three wires, adapted to the three-phase system, each wire having an area of about 330,000 circular mills.

Full proposals, with detailed plans and specifications for the construction above outlined were submitted October 11, 1894, and the amended proposition for carrying out the construction on the same general lines was submitted March 13, 1895. Nothing further developed in the matter until June, 1896, when new proposals were asked for the construction of the line on the assumption that white cedar instead of iron poles would be used throughout. Such proposal was submitted June 13, and accepted some days later.

When the route for the line was finally determined on, its length was found to exceed twenty-seven miles instead of being twenty-five miles, as previously assumed, and consequently the area of the wire was increased from 330,000 to 350,000 circular mills. The wire actually erected is composed of nineteen strands, having a combined area of full 350,000 circular mills, and weighs nearly 6,000 pounds per mile.

In designing a transmission line, the three most important factors probably are: First, its ability to carry its full load continuously and without interruption; second, cost; third, efficiency.

The first cost of power used to develop current for a transmission line is usually low, wherefore the efficiency of the line is not of primary, although of great, importance.

First cost within reasonable limits should always be considered secondary to good construction, so that you will probably concur in awarding first place as a factor in problems of this nature to the avoiding of interruptions. This is surely of primary importance in most lighting work, and it is easy to conceive of circumstances where the unexpected shutting off of power might have more

serious or possibly more fatal results than could ever arise from sudden deprivations of light. Entering into this problem of sure and continuous operation we have the same two factors entering which usually confront us in connection with any electrical installation, namely, insulation and mechanical strength. In low-tension plants of all kinds the insulation is usually accomplished with ease, and any probable defects are likely to be of minor importance, but on such a line as that under discussion the importance of these two factors is practically equal and they are mutually independent. This has been practically illustrated by the experience afforded by the present line. With units of an ordinary size, a short circuit on a line carrying 10,000 volts, even if through a defective insulator, a wooden cross-arm, a wooden pole, would make itself manifest at the power station by the opening of a circuit breaker, the blowing of a fuse, or some similar method. With the huge generators which furnish power for the line, the effects are different. Of what importance to a 5,000-horse power dynamo is the current which will leak down a wooden pole even when wet? Nevertheless, this same current is sufficient to char or burn the pin under a defective insulator. During one night last fall, while an attempt was being made to operate the line on temporary insulators, the best obtainable at the time, the ends of no less than five of the large cross-arms used on this line were burned entirely off; and this, too, without any manifestation having been made at the station that anything unusual had occurred. This naturally raises the questions whether it is possible to procure insulators which can be depended on to maintain the insulation on a circuit carrying 10,000 volts or over, and whether it is not good practice to have fewer poles, and consequently less weak spots in the form of insulators. There are two sides to this question, and both deserve serious consideration in designing any transmission line. Let us assume that poles are set 100 feet apart and allow a sag in wires between supports of twenty inches, or one-sixtieth of the length of the span. We find that the area of the wire in use on this line is 0.267 square inch, and that its tensile strength, even assuming a high value for soft copper, is about 10,000 pounds. Allowing the same deflection, one-sixtieth of the length of the span, this determines the maximum safe distance between poles as 178 feet, allowing a factor of safety of four, and shows that the cables might be expected to break if the span were lengthened to 712 feet, not allowing for wind pressure or extra load due to ice.

Assuming the tensile strength of 8,000 pounds per square inch for yellow pine, we find that the large cross-arms used on the line, which are 12 feet long and nearly 5 inches wide by 6 inches high, would support a load of 270 pounds on each end without bracing, and of 360 pounds on each end with the steel angle braces used, and this, too, with a factor of safety of ten, an unnecessary margin when we consider that the arms are specially selected heart long-leaf Georgia pine. Similarly these cross-arms would have the same factor of safety carrying three power cables on each side, with spans of 177 feet long, if without braces,

and 266 feet long with braces. Besides giving this added strength the braces used on this line prevent such vibration and oscillation as usually takes place with the ordinary strap iron braces, such oscillation being the cause of many of the petty troubles on ordinary lines. These braces were each made from a single piece of steel angle-bar, 2x2 by 2x1/4 inches, bent to shape and forming when finished a truss 18 inches deep and 5 feet in extreme length, their weight being a little over 20 pounds each. Assuming, again, that poles are set 100 feet apart, we find that twelve wires with cross-arms, insulators, etc., would present an area to the wind aggregating about 67 square feet, and that consequently each pole would be subjected to a side strain, when the wind pressure was 30 pounds per square foot, of about 2,010 pounds. A sound 50-foot cedar pole, 8 inches diameter at top and 18 inches diameter at butt, 8 feet being held rigidly in the ground, would be capable of withstanding, before breaking, a side pressure near its top of only about 4,900 pounds, and of only about 3,400 pounds when a layer 2 inches thick had decayed around its circumference.

With spans of 100 feet the pole would, therefore, have a factor of safety of only about 2.5, when new, while the wires would have a factor of safety of about 7 and the cross-arms of about 26. The advantages of having cross-arms amply strong are so evident, and the possible reduction in cost such an insignificant part of any ordinary line carrying much copper, that it would seem foolish to reduce the strength or size of these in order to bring their strength down to correspond with other parts of the line.

It is evident from the above that the weakest point of this line mechanically is the pole, in spite of the fact that final decision was made in favor of placing the poles 75 feet apart on straight and proportionately closer on curved parts of the route.

During the past eight months insulators have been sent to Niagara Falls by four of the works which are among the first six in this country in the production of porcelain for electrical use. Of a sample lot of ten received a few days ago for test from one of these factories, one had broken in transit, eight broke under the strain of electrical pressure varying from 16,000 to 36,000 volts, and the last broke under 40,000 volts strain. Several lots of somewhat similar insulators from another factory gave about the same results.

Several thousand insulators of a diameter almost equal to the round type now on the line, but of a design somewhat different in details, were furnished by a third porcelain works. These were all supposed to have been tested, and to have successfully withstood a pressure of 40,000 volts at the factory before shipment. When, however, these were tested at Niagara Falls by Mr. Lincoln, the electrical superintendent of the Cataract Construction Company, it was found that a large majority of them broke down under a 40,000-volt test, illustrating that dry test such as had previously been made is useless for practical purposes. The method of test used at Niagara Falls was as follows: The insulators were set inverted in a shallow iron pan in lots of about twenty, the bottom of the pan being covered with an inch or two of water containing a little salt. A

*Abstract of a paper read before the Niagara Falls Convention of the National Electric Light Association, June 9, 1897.

little of the same brine was poured into the pin hole of each insulator, and into this was thrust a small piece of metal, such as an ordinary iron spike or the small round zinc rod from an ordinary sal ammoniac battery, this being connected to one side of the testing circuit, of which the other side is connected to the pan containing the insulators. After the metal rod had been placed in the brine in the pin hole of an insulator the primary circuit of the testing transformers, specially built for the purpose, was closed; and if the insulator was weak, this was quickly manifested by a series of sparks through the punctured porcelain. Experiments made with pure water and with brine showed that there was no difference in the results; but that any weakness was manifested a little more quickly with brine, besides which the salt imparted the characteristic bright sodium color to sparks otherwise almost colorless and difficult to detect.

As it was important that the line should be ready to deliver current by a specified date, the test was reduced on these insulators to 20,000 volts, and all which withstood this pressure were passed for temporary use. These insulators were later replaced by some of those now on the line, all of which successfully passed a 40,000-volt test made as above described.

A lot of the temporary insulators illustrated the old saying that every rule has its exception, for when, after removal from the line, they were tested under 40,000 volts pressure, a solitary insulator from a total of 1,150 was able to pass muster.

Of the insulators shipped by the fourth factory, and of the two types now on the line, about twenty-five to forty were usually found to be defective, breaking down under 40,000 volts, this percentage decreasing in the last shipments received. It is, however, worthy of special note that since the last of the temporary insulators were removed from the line, there has not been one minute's suspension of current supply due to defective insulators.

In the above and other experiments with insulators some interesting facts have been developed, and are worthy of note. The insulating strength of porcelain depends almost entirely on the thoroughness of its vitrification and very little on its thickness, a thin china tea-cup having successfully withstood a pressure of 60,000 volts, while a coarse piece of porcelain two inches thick was readily pierced by 20,000 volts. It is, therefore, practically unnecessary to test electrically any insulator which, when broken, will not pass a good absorption test, using red ink or other similar fluid.

It is quite, if not entirely, impossible to puncture a glass insulator, even an ordinary pony telegraph insulator withstanding any pressure which can be applied, the last being determined by the pressure which will send an arc around the insulator. The objection to using glass insulators in the past has been due to the difficulty in getting a well-annealed and mechanically strong insulator of such massive design as is needed for this work, and to the hygroscopic property of glass, which is not shared by porcelain. The first can unquestionably be overcome by care in manufacture. The importance of the second has probably been exaggerated in most calculations made in the past, due to an inade-

quate appreciation of the static effects of 10,000 volts in warding off snowflakes and drops of rain, and to a less extent of the rapidity with which water falling on such insulators is evaporated by the heat of the current leaking over the surface.

It is consequently reasonable to expect that the use of glass insulators for high voltage lines will greatly increase with improved manufacture. Meantime any lines erected should have the best obtainable porcelain, and every insulator should be subjected to test.

It is natural to ask: "Is the line as built a genuine success? Can it be depended on, and is it effective?" In answering, let me give briefly some of the facts. The line now in operation is over twenty-five miles long, of which the last 4,000 feet is underground, the current being carried in lead-covered cables with rubber insulation, these having been drawn into terra cotta duct conduit built specially as part of this line. These cables successfully withstood a test of 40,000 volts, are guaranteed for five years under working pressure up to 25,000 volts, and were punctured during test only by a pressure estimated by Mr. Lincoln as about 80,000 volts. They have given no trouble since current was first turned on the line, November 15 last, except at two joints imperfectly made. Except for the short time needed to repair one of these joints there has not been a single shut-down chargeable to the transmission line itself since the last temporary insulators were removed, some three or four months ago.

The line shows an insulation resistance of some 250,000 to 300,000 ohms on wet and about 1,000,000 ohms on dry days, this being between any one of the three wires and the ground, the insulation, therefore, varying from 6,000,000 to 25,000,000 ohms per mile of wire.

The actual working efficiency as shown by the wattmeters in the low-tension alternating circuits at Niagara, and the direct-current 500-volt circuit at Buffalo was 79.6 per cent, this being for a considerable period and a fluctuating load. This efficiency included loss in step-up transformers, line, step-down and rotary transformers. It is probable that any decrease in this due to greater line loss with larger load would to a considerable extent at least be offset by increased efficiency of transformers. In view of these figures, I hope you will feel warranted in indorsing the opinion that Niagara power is now being satisfactorily delivered in Buffalo.

One of the questions often asked is why this entire line was not placed underground. One of the principal reasons was that the line of twelve wires, having a capacity of 200,000-horse power, would cost, irrespective of right of way, fully a million and a quarter of dollars if underground, and only about one-third of that amount overhead, making a serious difference in interest charge.

Of such total costs about 20 per cent would cover cost of conduit complete, including manholes, the remaining 80 per cent being lead-covered cables.

Of the overhead construction cost, slightly over 80 per cent is bare copper wire, less than 10 per cent covers poles set in place, and about 3 per cent covers insulators.

It is probable, therefore, that the depreciation of the lead-covered cables will greatly exceed that of the pole line, the first cost being some thirty times as great, and the depreciation of the bare

copper being negligible. Aside from this, experience to date has not demonstrated that the underground line would be more reliable, which alone could justify the increased depreciation and interest charge.

As a final deduction, it seems reasonably certain that it is now possible to build either overhead or underground transmission lines, even in regions subject to much cold, damp weather, capable of carrying current at 10,000 volts or higher pressure, which can be operated with efficiency and every assurance of uninterrupted service.

TELEPHONE LINES.

From the many inquiries received concerning disturbances on telephone lines, the cause of such disturbances seems to be little understood. This, however, is not astonishing, in view of the explanations that may be found in some books on telephony.

Three sources of trouble will here be considered—from earth's magnetic disturbances, from what are generally known as leakage currents from grounded electrical circuits, and finally—the most important—from the inductive effects of neighboring conductors.

The first and last of these causes may be best understood by considering that the telephone circuit forms a loop into which lines of force may be introduced and withdrawn, thereby setting up inductive E. M. Fs. in the loop, which may or may not cause disturbances, according to the arrangement of the line.

Magnetic storms and similar magnetic disturbances consist in variations of the strength of the magnetic field of the earth. Ordinarily this field is constant in value, with perhaps a slight variation between the value at one hour of the day and that at another. These latter variations, however, would be at such a slow rate as not to affect a telephonic circuit. During other periods of magnetic disturbances, the fluctuations of the field of the earth may be very rapid; that is, the number of lines of force in a given area increases or decreases at a rapid rate. If the telephone circuit is within this area, these lines of force cutting in and out of the loop will set up E. M. Fs. in the circuit.

The remedy to apply in this case is to transpose the two telephone wires at more or less frequent intervals. It will be seen that if this is done and the variations of the lines of force in each of the loops formed by transposing the two conductors at intervals are the same, the electro-motive force set up in the same wire will be in opposite directions in adjacent loops. That is, suppose we call one wire of the loop the outer wire and the other the inner wire; then the direction of the E. M. F. in the outer wire will be opposite to the direction in the inner wire of the next loop; and if the wires are transposed the various portions of the same wire of the line will be alternately outer and inner, and thus the E. M. Fs. will balance each other. If the wires were not transposed, the E. M. F. set up in each foot of the loop would be added together, thus producing a disturbance which may be very considerable. Of course, the application of this remedy requires an all-metallic circuit, there being no method by which this class of disturbance can be neutralized on a grounded line.

The class of disturbances from grounded circuits, such as telegraph and elec-

tric railway circuits, may be considered from two standpoints: First, we may consider that when the return current arrives at the grounded end of a telephone line, it has the choice of two paths, one through the telephone wire and the other a continuation of its path through the earth. Or, we can consider that a current flowing through the earth causes a drop of voltage between the point where it enters and the point where it leaves, or between any two points of its path. This follows from Ohm's law, $\text{drop} = CR$, where C is the current and R the resistance of the path.

If the two ends of the grounded telephone wire come within the influence of this drop, the current will be subjected to a voltage equal to the drop between such ends. This latter seems to be a better method of looking at the subject than the former or "leakage current" theory.

The only remedy for disturbances from this cause is again a complete metallic circuit, but, unlike the first and third cases, one return wire may be used for any number of lines, the only desideratum being to disconnect the telephone circuits entirely from the earth. It has been proposed to use a condenser on the telephone circuit to shut off currents from railway and telegraph ground-return circuits, but this would not prevent line disturbances, for the reason that such disturbances are due only to variations in the value of the current; if a current steady in value passes through a telephone line it would not necessarily cause any disturbance at the telephone.

The third cause of troubles is the most prolific, as they are due to the proximity of any circuit carrying a current varying in value, such as lighting and telegraph circuits and neighboring telephone circuits.

Any conductor carrying a current is surrounded by lines of force which proceed out into space in concentric lines. If any closed loop is in the neighborhood of such a conductor, it will contain some of these lines of force. If the current is continuous, this will not produce any effect, but if the current varies in value, the number of lines contained within the loop will vary, and each variation will produce an inductive E. M. F., which will be in one direction when the lines increase and in the opposite direction when they decrease. This inductive E. M. F. will set up a current in the circuit which, even though it may be but the merest fraction of an ampere, will affect the telephone.

There are two remedies that may be applied in this case, one of which is to make the telephone line non-inductive and the other is to make non-inductive the source that otherwise would cause a disturbance.

In order to make the telephone lines non-inductive, the two lines should be transposed at intervals as above explained; in this case, as in the other instances referred to, the inductive E. M. F. produced in one of the loops will balance that produced in the other loop, if the number of lines of force in each is equal.

If the number of amperes in the neighboring conductor does not vary, these loops may be made of any convenient length; if, however, the current flowing by one loop is greater or less than the current flowing by a neighboring one, the

inductive E. M. F. of the one will not, of course, balance that of the other, and their value would depend upon this current. Consequently, in this case it is necessary to consider the amount of current carried in the line; at the point at which part of the current is led off the wires should be transposed, and the length of the loop extending parallel to the portion of the line carrying the smaller current should be made longer than the adjacent loop in proportion to the two currents.

It is, of course, desirable to remove the telephone wires as far as possible from the disturbing force, as then any variation from exact parallelism will produce the least effect.

In case it is necessary at any point to approach a grounded telephone conductor to a line carrying, for example, an alternating current, it will be best to approach and leave such line at right angles; a second wire may then be run back from the telephone and transposed at short intervals with the original telephone wire, its end being grounded at the point where the first wire leaves the conductor at right angles. In other words, run a dead wire back from the instrument, transpose it with the telephone conductor along the disturbing wire, and ground its end at the point where the telephone wire is taken off at right angles. This is equivalent to bringing the ground up at this point, or to making the circuit an all-metallic circuit for the distance in which it is subject to disturbing influences.

By this method a telephone wire may be kept free from disturbances, though passing at intervals in proximity with highly disturbing causes; the amount of dead wire necessary will, of course, depend upon the distance of the disturbing wire from the telephone thus protected, but this method, in many instances, will take much less wire than an entire metallic return, and yet transform an unsatisfactory service into a satisfactory one.

If the disturbing line is made non-inductive, of course, a telephone line may be strung at will. As, however, there is no probability of the owners of disturbing lines going to this expense, it will be unnecessary to consider this aspect of the question.—American Electrician.

SECONDARY OR STORAGE BATTERIES.

If water be decomposed for a time between neutral electrodes, such as platinum plates, and then the battery or other generator be withdrawn from the circuit and replaced by a sensitive galvanometer, a deflection of the needle shows that a transitory current flows in the opposite direction to the primary or electrolyzing current. It is evident that the electrolyzing current polarizes the electrodes in the electrolyte, and that energy is thus stored in the cell. When the wires are joined, this polarization causes a current to flow during an appreciable period, and the platinum electrodes become depolarized. The electrical energy of the cell is converted into chemical potential energy in that it overcomes the E. M. F. of the decomposing cell. Polarization is of the nature of a counter E. M. F. It is precisely this polarization which we have to contend with in nearly all voltaic cells, and which we seek to "neutralize" by means of depolarizing substances.

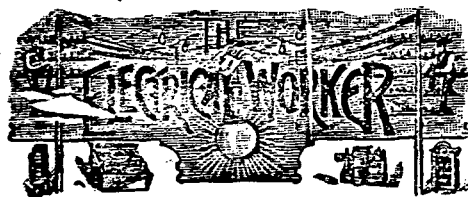
Devices for this storing up energy by electrolysis, and liberating it when desired in the form of electric current, are called storage or secondary batteries, and sometimes accumulators. Note that the process is an electrical storage of energy, not a storage of electricity. The energy assumes the form of chemical potential energy, and there is really no more electricity in the cell when it is fully charged than at the commencement of the operation.

If, instead of platinum electrodes, two plates of lead covered with a coating of red lead, or, better, the positive plate (which is the positive electrode when the cell is being charged) covered with a paste of red lead and sulphuric acid, and the negative plate with a paste of litharge and sulphuric acid, be used as electrodes, dipping as before into sulphuric acid, and the electrodes be connected with a powerful voltaic battery (or better, with a dynamo), the positive electrode becomes by electrolysis peroxidized by the oxygen which is liberated, while the negative is deoxidized by the hydrogen. The plates may remain in this state for many days. Hence, the storage battery is a very convenient means of accumulating energy at one time or place, and using it at some other time or place. For example, energy may be stored during the daytime; and this energy, reconverted into electric energy, may feed incandescent lamps at night at any convenient place. Or these batteries, having been charged by a dynamo, may be transported to lecture halls, workshops, electric cars, etc., where powerful currents may be needed. The E. M. F. of these batteries may be multiplied many fold by joining them in series on the same principle as the E. M. F. of voltaic batteries is increased. The E. M. F. of a single cell similar to the above is about 2.2 volts. The internal resistance of a cell whose surface of electrodes is 48 sq. in. is about .006 ohm. Their low resistance constitutes one of their chief virtues as generators. An idea of the capability of a storage battery may be obtained from the statement that a battery capable of furnishing one-horse power for five hours weighs 500 lbs.; it will supply twelve incandescent lamps of sixteen candle-power each for five hours. It will then require to be recharged. The great fault of these accumulators in their present form is their want of durability. A. P. GAGE.

The Florence and Cripple Creek Ry. Co. is contemplating substituting electric power for the steam locomotives now in operation on its lines.

The Pioneer Power Co. of Salt Lake City has contracted to light the city for three years at \$72 per light. Four hundred 2,000-candle power lamps are required under the contract, which will require the placing of about 150 new lamps.

The City Council of Allegheny, Pa., is considering the question of furnishing with electric lights free of cost from the municipal plant all of the public schools of the city. There are twenty-three school buildings and the estimated cost to the taxpayers to wire the buildings and supply the fixtures is about \$100,000. The municipal plant has sufficient capacity to supply the necessary current.



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be readily appreciated.

St. Louis, Mo., July, 1897.

W. N. GATES, - SPECIAL ADVERTISING AGENT,
29 Euclid Avenue, CLEVELAND, OHIO.



The hot weather seems to have a de-
pressing effect on our Press Secretaries.

The tables have been turned on the
Bell monopoly, the Western Telephone
Construction Co. of Chicago having sued
it for infringement of patent. The shoe
is beginning to pinch the other foot.

The Central Underground Electric
Railway of London has a special interest
for Americans, from the fact that the
entire equipment of the road will be of
American manufacture, even to the ele-
vators.

The United Garment Workers of Amer-
ica report that Cleveland & Whitehill Co.
of Newburgh, N. Y., manufacturers of
overalls and pants (the Keystone brand),
have unionized their factory, and hence-
forth all garments made by them will
bear the union label. This is another
victory for the Garment Workers.

As we go to press the daily papers con-
tain such scare headings as "The Great-
est Strike in the World's History"; "The
Strike Now on"; "The Strike Will Cost
\$50,000,000"; "Half a Million People Di-
rectly Involved, and Over 3,000,000 Af-
fected." Is this the promised prosperity?
Probably it is coming in backwards.

The Westinghouse Co. (the lamp trust)
has brought suit against the Beacon
Lamp Co. for infringement of patent.
This is rather a late date for such tac-
tics. The trust failed to get the Beacon
Co. to join, and now tries to intimidate
by bringing suit.

Despite the opposition of the National
Electric Light Association and the elec-
trical press, the sentiment in favor of
municipal electric lighting is growing
rapidly. We cannot blame the National
Electric Light Association, as self-pres-
ervation is one of the first laws of na-
ture, and with each city running its own
electric light plant, a large number of
the delegates to the annual conventions
would find themselves, like Othello,
without an occupation. As for the elec-
trical press, of course it must decrie mu-
nicipal ownership in order to stand in
with the men who support it. The peo-
ple and taxpayers are not considered.

The A. R. U. is a thing of the past, and
its High Mogul, E. V. Debs, has a new
scheme of salvation. Debs will proba-
bly find out after awhile that bad he
stuck to his trade organization, the
Brotherhood of Locomotive Firemen,
which had honored him as an officer for
fourteen years, and not attempted to dis-
rupt the railway organizations, as he
did when he started the A. R. U., he
would have accomplished more towards
the amelioration of workingmen than by
all the wildest Utopian schemes he can
devise. If Socialism is what he wants,
why not join De Leon in the Socialistic
Labor Party, and not spring the same
thing under another name—"The Social
Democracy"?

The trade organizations of San Fran-
cisco have filed a protest against the ap-
pointment of Oscar Lewis as superin-
tendent of construction of the new post
office about to be built in that city. They
accuse Lewis of being an enemy of or-
ganized labor, having fought organized
labor at all times; that he took a promi-
nent part in organizing the Employers'
Association, which had for its avowed
purpose the destruction of the trade
unions of San Francisco, and openly ad-
vised the use of "cold lead" upon union
men; that Mr. Lewis has been bankrupt
several times, and is at present short in
a sum of over \$4,100 to his employes on
city hall work.

In view of these facts, the trade or-
ganizations of San Francisco deem Lew-
is an unfit person to be intrusted with
the important position of superintendent
of construction of the new post office,
and ask all trades to petition the Secre-
tary of the Treasury not to appoint him.

The meeting of representatives of in-
dependent telephone companies in De-
troit and the formation of the Independ-
ent Telephone Association, and also the
formation of an association of telephone
manufacturers, should be an object les-
son to electrical workers, particularly
those who do not see the benefit of or-
ganization, or who, seeing, do not act.
The independent telephone companies
realized that singly and alone they were
not able to compete or maintain their ex-
istence against the powerful opposition
that would be sure to come, if from no
other reason than from their weakness.

Realizing this, they have formed an as-
sociation, and now present a solid front
to the Bell monopoly, and the latter will
think twice before attacking the young
giant. What is true of the exchanges is
also true of the manufacturers, and
hence they also organized. Can't elec-
trical workers see anything in this that
they can apply to themselves? As in-
dividuals, what can you expect? You are
in the position of a beggar asking a fa-
vor, instead of men demanding your
rights and in a position to enforce this
demand if necessary. The recent jubilee
naval display of England, at Spithead,
will do more to preserve the peace and
respect of England than could all the
peace associations and churches in the
world. It showed that England is pre-
pared. In like manner, when workmen
are organized and have a good treasury,
they are prepared for any emergency,
and the fact that they are prepared to
act as a unit, will, in nearly all cases, be
sufficient to secure their rights. It is the
loaded gun we are afraid of.

At the Cincinnati convention of the A.
F. of L., after considerable discussion, it
was decided to submit the question of
restriction of immigration to a referen-
dum vote of the organizations represent-
ed. In compliance with the resolutions
adopted at the convention, the Executive
Council of the A. F. of L. has issued a
circular relative to immigration, and
asks the following questions:

1. Does your organization favor
amending the laws of the United States
to restrict immigration more than it is
now restricted?
2. Does your organization favor a pro-
vision in the law guarding against crim-
inal and pauper elements entering into
the United States?
3. Should the foreign consular service
and our Immigration Department be in-
trusted with greater powers to enforce
immigration laws?
4. Should the violation of the Alien
Contract Law by employers be punish-
able by imprisonment?
5. Should the steamship companies be
held responsible for a term of years for
character of their passengers?
6. Should a stricter civil and educa-
tional test be enforced as to qualification
for naturalization?
7. Should every immigrant be com-
pelled to declare his intention to become
a citizen of the United States?

What other provision does your organ-
ization favor and suggest, if any, to fur-
ther the restriction of immigration?

The circular concludes: "In the effort
to arrive at a conclusion upon this most
vexed immigration question, you are ur-
gently requested to strip your minds
both from undeserved prejudices, as well
as false sentiment. The question must
be met with judgment and foresight in
the interest of labor, having a due re-
gard for the natural rights of all men.
Desirous of securing your untrammelled
decision upon the question, we, at this
time, urge no opinion of our own, reserv-
ing to ourselves that right as members of
our respective organizations.

"It is the duty of every organization
which expects to be represented at the
Nashville convention of the A. F. of L. to
instruct its delegates so that the conven-
tion may fully express the real judg-
ment of organized labor on the subject
of immigration restriction. Unions which

will not be represented at the convention by delegates are also required to discuss and vote upon the questions submitted, and to return said vote to the office of the A. F. of L. not later than October 30, 1897. In sending in the votes of unions the number voting in favor of and against each proposition should be given."

NATIONAL ELECTRIC LIGHT ASSOCIATION CONVENTION.

The twentieth convention of the National Electric Light Association was held at Niagara Falls, N. Y., June 8, 9 and 10. The attendance was unusually large, and the convention is considered to be the most interesting and successful held by the association. Papers were read as follows: G. B. Cahoon, "The Establishment of a Base Price for Current;" J. G. White, "The Niagara Power Transmission Line;" Arthur Wright, "Profitable Extension of Electricity Supply Stations;" Prof. Chas. A. Carus-Willson, "The Induction Factor; a New Basis of Dynamo Calculation and Classification;" Prof. Elihu Thompson, "Recent Progress in Arc Lighting;" T. C. Martin, "The Daylight Work of Central Stations;" B. F. Lamme, "Polyphase Motor;" Lieut. F. Jarvis Patten, "Frequency Transformation;" C. F. Scott, "Rotaries for Transforming Alternating into Direct Current;" W. W. Bean, "Municipal Lighting." Also reports from committee on data, committee on safe wiring, and committee on standard candle power of incandescent lamps. All papers read were fully discussed, and will be published as space will permit in the "Electrical Worker."

The following officers were elected for the ensuing year: Samuel Insull of Chicago, president; A. M. Young of Waterbury, Conn., first vice president; George R. Stetson, New Bedford, Mass., second vice president; George F. Porter was re-elected secretary.

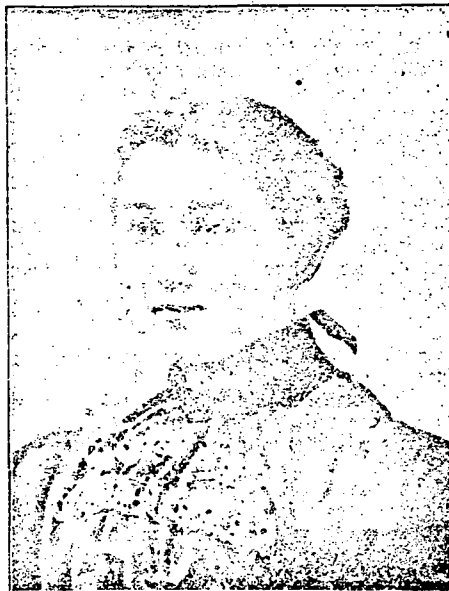
THE SOUTHERN CALIFORNIA POWER COMPANY.

The details of the contract recently awarded by the Southern California Power Co., for a water-power electric transmission to Los Angeles, Cal., include the following: To the General Electric Co., three 750-kw three-phase generators, of 50 cycles frequency; twelve step-up transformers, to raise the voltage to 33,000 for transmission; all switchboard and generating-station apparatus; to the Westinghouse Electric and Manufacturing Co., all sub-station work and lighting protection, the latter to be of the Wurts' system. In the sub-stations will be installed six 500-hp. synchronous motors, of 50 cycles (to be changed, later, to rotary transformers); one 300-hp. synchronous motor, to be temporarily used as a generator; the reducing converters, from 30,000 volts, primary. The step-down transforming units will be of 250-kw. and 150-kw. capacity, of Westinghouse self-cooling, oil-insulated type.

The power plant will be located twelve miles from Redlands on the Santa Ana River, about eighty miles from Los Angeles. The John A. Roebling's Sons Co. was awarded the contract for the 600,000 pounds of copper wire required for the main circuits. The pole line will be constructed by the Power Company under the supervision of Chief Electrician En-

sign, who prepared the plans. There will be two three-phase circuits of No. 1 hard-drawn copper wire. The poles will be planted 110 feet apart, ranging from 35 to 50 feet in height. The 50-foot poles will have 12-inch tops. The insulators will probably be of glass. The generators will be connected in multiple. The current, which will be generated at not to exceed 1,000 volts, is to be transformed to a pressure of 33,000 volts for transmission. About 10,000 horse-power is available from the Santa Ana River supply. The working head of the water will be 750 feet. Water will be diverted from the river at its junction with Bear Creek and carried 3 1-2 miles through a flume and rock tunnels to a pipe 2,200 feet in length, which will conduct it to the water wheels in the canyon beneath.

Long-term contracts for electric power have been closed with the West Side Lighting Co., Los Angeles; the Pasadena Electric Light and Power Co., and the Los Angeles and Santa Monica Railway Co. Each of the companies will use 1,000 horse-power. The entire system will probably cost \$500,000, and will be ready for operation in February, 1898.



MISS MAE PATTERSON,
President Union No. 80.

The trolley roads of Baltimore have consolidated under the name of the Baltimore Consolidated Railway Co., with a capital of \$10,000,000.

The St. Lawrence Construction Co. of New York has placed an order with the Westinghouse Electric and Manufacturing Co. for fifteen 5,000-horse power generators, which are to be erected at the plant at Massena, Northern New York, on the St. Lawrence River. This is the largest single order ever given for electrical apparatus, and the amount directly involved is about three-quarters of a million dollars. The Westinghouse Co. recently received an additional order from the Cataract Construction Co. of Niagara Falls, New York, for five 5,000-horse power generators, which makes a total of 100,000-horse power in generators ordered in less than a year by two companies.

"A MAN'S SHARE."

After studying our condition as workmen for some time, I will try to put some of my thoughts on paper, where they may set some of my fellow workmen athinking. "The greatest question in the world," said Geo. Elliott's radical workman, "is how to give every man a man's share in what goes on in life," and it is as great a question to-day, not only in England, but in America as well, as it was at the date of the reform bill. We are still asking ourselves how to give every man a man's share—not a pig's share, not a horse's share, not the share of a machine fed with oil, only to make it work and do nothing else. It isn't a man's share just to mind your own pin making or your own glass blowing and higgie about your own wages and bring up your family to be ignorant sons and daughters of ignorant fathers, and no better prospects. That's a slave's share. Fifty years ago, the English workingmen had a slave's share beyond a doubt. His American brother had something more than a slave's share; not much more, it is true, but he had the great advantage of a better prospect, and his heart was filled with hope. He had some chance to be independent and the superiority of his condition cast its shadow far across the ocean on to his English brethren, and filled their hearts with yearning. Oh, for the political conditions of America. They would quickly mend things then. They would soon fix it so that each of them should have a man's share. The great struggle was, therefore, for the franchise. It was useless for Felix Holt to say to them: "I should like to convince you that votes will never give you political power worth having while things are as they now are, and that if you go the right way to work, you may get power sooner without votes." They would not listen to such talk. Their faith in the ballot was supreme. Felix and a few radicals like him might wish to go to some roots a good deal lower down than the franchise. They might believe that while Caliban is Caliban, though you multiply him by a million, he will worship every Trinculo that carries a bottle, but they were vastly in the minority and their opinions didn't count for much. But were they not right? How much more than a slave's share does the English workingman get to-day, notwithstanding the great extensions of the suffrage that have been granted during the past half century; and the American—with manhood suffrage since the beginning of the Government, with the power to mold political conditions and sway Governments to suit his will conceded to him universally as a practically indefeasible right—how much more than a slave's share does he enjoy? Taken as a class, the American workingmen are much worse off than they were half a century ago. They are less independent, less self-reliant and hopeful for the future. We can note symptoms of degeneracy on every hand. The old type of workmen, so familiar a generation ago, who dared to stand up before a prospective employer and assert his manhood's right to accept or reject terms of employment at will, who met his employer on a plane of equality so far as dictating conditions of employment was concerned, refusing to recognize his mastership and accepting employment, not as a favor for which he should feel

profoundly grateful to the one who granted it, but as the result of a mutually satisfactory contract in the making of which both parties had rights, and a chance to assert them, who felt not the paralyzing hand of economic servitude pressing its dead weight upon him, robbing him of the buoyancy of spirit and hopeful energy which is a free man's natural inheritance. This type of workman has virtually disappeared from American industrial life. He has been replaced by a pitiful cringing servile counterfeit of a man, who looks upon one who furnishes him with employment whereby he obtains the means to keep his poor starved soul imprisoned in his all but worthless body as a genuine benefactor of his race, who dares not express a thought contrary to the known wishes of his employer for fear of a disastrous economic consequence being visited on his own head, and whose independence is merely a pretty sentiment for pseudo social and political philosophers to juggle with for the purpose of hypnotizing him into a state of exalted consciousness of his own importance and patriotic fervor for the preservation of his country's well being (sic), and what amounts to the same thing, his benefactor's interest about election time. This is the "man's share in what goes on in life" that has fallen to the lot of the American workman after centuries of experience with manhood suffrage. Is it a false, an over-colored picture? No, it is not. It does not begin to do justice to the subject. It but faintly expresses the degeneration of the type. The millions of workmen outside the protecting boundaries of trades unions exist in hopeless slavery of the "most degrading kind." Their political liberty is merely a useless toy. Their votes are merely the instruments which pass into the control of their masters along with the labor power they sell him, to be used for the same purpose, viz.: their employer's exclusive benefit and enrichment, and the perpetuation and extension of the conditions and bounds of their own slavish existence. "Employers of labor have a perfect right to say how their employes should vote," said a prominent railway man during the progress of the recent political campaign, "they do wrong to furnish employment to those who persist in voting and talking contrary to their employer's interests." This infamous doctrine was openly and shamelessly proclaimed and acted upon in the recent election, and is now an accepted feature of American political life. No matter how skillful and industrious a man may be in the service of his employer, his services are no longer needed if he dares to express an independent thought on political subjects—a thought that runs counter to the thought of his employer, and his economic servitude is so great that he must accept the verdict with what grace he may on pain of starvation. Truly the votes of the workmen are of little use to him while things are as they are now. The only semblance of independence remaining in American industrial life is to be found among the strongly organized workmen, and the pressure of economic conditions is becoming so intense as to make it increasingly harder for even them to maintain their status, and it is only a question of time, if present developments continue, when they, too, must fall under the

yoke. The pressure from without will become too great for them to withstand. Here is a problem that demands the best thought of the age. Trades Unionism is vitally interested, and it would do well to slightly alter its line of battle and its methods of attack if it does not wish to see an immense volume of pent up social force finally bursting into mad frenzy and rending the fabric of present institutions from top to bottom.

C. H. McNEEL,
Press Secretary, No. 67.

There is no class of persons that has as little sympathy for trades unions of workmen as the professional class, yet there is no class of persons that maintain such perfect trades unions for themselves as this same professional class.

Members of the legal profession have established an ideal trade union. This trade union has absolute control of the profession in every court of law and in nearly every civilized country. No man can plead a case as an attorney without having made application and been received into the lawyers' trade union, known as the "bar." The power of this lawyers' trade union is so great that judges bow in submission to its rules and regulations.

The Medical Association, the doctors' trade union, prohibits any person, lest he be recognized by such trade union, prescribing medicine for the relief of the afflicted. They have also established professional ethics that are as binding on their craft as are the ethics of labor unions. The medical profession denounces as "quacks" doctors who ignore the rules of the medical trade union just as labor unions denounce as "scabs" workmen who ignore the ethics of labor unions, and a "working card," a diploma, must be in the possession of the medical practitioner before he earns a dollar at his trade.

The professional trades unions have been far more successful in the protection of their crafts than have labor trade unions. While labor has been denounced by many good people for attempting to secure legislation beneficial to labor, these professional gentlemen have quietly secured laws that effectually prevents "scabbing" by non-union professional men. The lawyers, the doctors, the dentists, the druggists have all secured laws which prevent incompetent persons working at their respective trades, yet, when a labor union attempts to accomplish these same results, these same professional gentlemen join in the cry of "Down with the tyrannical labor unions."—Locomotive Firemen's Magazine.

TO NUMBER 80.

Hurrah for No. 80, and its lady members
doughty,

Who dare combine in Union against a
foreman gouty;

We wish there were more like you, to
join our 'lectric workers.

And help along the labor cause; we don't
want any shirkers.

Hurrah again, we shout hurrah, with all
our royal might,

To our sisters fair, with shining hair,
and eyes like electric light.

May your life be long, your Union
strong, and never a job you cannot
fix.

Is the greeting we send from loyal line-
men of Erie, Local No. 56.

FROM OUR UNIONS.

ST. LOUIS NOTES.

No. 1 is booming. With our contract in force, and all members working, we have no kick coming, and to make a good thing doubly good, prospects were never better in St. Louis. The work on the Liggett & Meyers' \$2,000,000 tobacco factories is progressing rapidly, giving employment to about a dozen of our members. Work on the Century Building still continues, although the beginning of the end is in sight. However, when the boys get through on that building there will be plenty of work for them on others. The wiring of the Century Building started nearly a year ago, and has given steady employment to nearly a dozen of our members. The Western Electric Co. has the wiring contract, while the Siemens & Halske Co. furnished the machines. Geo. Wade has charge of the work for the Western Electric Co., and it is the universal wish of the boys who work for him or who have made his acquaintance that he will have charge of another large job in St. Louis in the near future. Thoroughly understanding the business himself, he knows what to expect from a wireman, and knows how to treat him properly. The boys will be sorry when George Wade leaves the city. Work on the new City Hall is also nearing completion, but by the time it is finished, Mr. E. G. Bruckman, the contractor, with his characteristic push, will have something else ready for the boys.

The Baggot Fixture Co. of Chicago opened a fixture house in St. Louis several years ago, but until this spring confined their work exclusively to fixtures and gas-fitting. This spring, however, the St. Louis branch decided to go into the wiring business, and secured Mr. F. E. Newbery, formerly with the Comstock Co. of Chicago, to take charge of the wiring business of the firm. Mr. Newbery first came to St. Louis about a year ago to wire a large building on Washington avenue, for the Comstock Co., so is not a stranger here. He immediately started in to capture some of the largest contracts, and has secured for his firm the Davis Building, which will be occupied by the Grand Leader, the contract calling for about 3,000 incandescent and 2,000 arc lights; the Fullerton Building, an 18-story sky-scraper on Seventh and Pine streets, and has just landed the contract for the Coliseum in the Exposition Building, which, by the way, is a very large job. In fact, all three are among the largest contracts ever let in St. Louis, and the fact that work will have to go on on all three at the same time will make the Baggot Co. one of the chief magnets for St. Louis wiremen for months to come.

Bro. C. H. Provost has been elected business agent by No. 1, and reported at last night's meeting that not a single Union man was idle. He also brought in a check for \$40 for four applications. The tables are turned in St. Louis now. Men are anxious and willing to pay dearly to get into the Union. A year ago we were begging them to come in at a \$2 initiation fee, and met with poor success. The initiation fee in No. 1 is now \$10, and dues \$1 per month.

The examination committee consists of Bros. Phil Fish, and J. T. Kelly, representing the Union, and E. T. Cook and J.

C. Briner, representing the Electrical Exchange. The fifth man is Jas. H. Fenton, inspector for the Board of Fire Underwriters. The examination is not very severe, although a person must understand thoroughly his business to pass. In anticipation of the examination, the members of No. 1 have made good use of the blackboard in the reading room, and you could find almost any evening a large number drawing diagrams and explaining everything which they thought could possibly be asked, until those who took interest, which includes nearly every one in the Union, can pass a civil service examination for electrician in the navy. At some future time I will publish in the "Worker" a list of questions asked so that our brothers in other cities can see what we are doing in St. Louis, and approximately what is required under our agreement with the contractors; and, by the way, any wireman who is admitted to No. 1 by card must pass this same examination.

I am sorry that I cannot say as much for the linemen of St. Louis as I have for the inside wiremen. While the inside men have been moving forward and making history, the linemen have been absolutely indifferent to their own interests, and have and are letting golden opportunities slip by. There will be more electrical work done in St. Louis during the next year than ever before in its history, not excepting 1889, when the Municipal plant was put in. Think of the work of putting in a telephone exchange in a city fronting fourteen miles on the Mississippi, with a depth, not counting suburbs, of from four to seven miles. The Kinloch Co. have given one order for 17,000 poles, and have ordered from the Standard Underground Cable Co. of Pittsburg, 375,000 feet of cable. Of this amount, 300,000 feet will be placed underground in the conduit district, which is only a small spot in proportion to the whole area of the city. The company expects to put in at least 10,000 telephones. The work of the new telephone company is only a small part of the work to be done in St. Louis, as all companies must go underground, and in addition to the old companies, several new lighting companies have been organized, among them the Imperial Electric Light, Heat and Power Co., the moving genius of which is E. G. Bruckman, a well-known St. Louis contractor, who has done some of the largest wiring jobs in St. Louis, among them the new City Hall, the Union Trust Building, the new Union Station, and the Globe-Democrat Building. Mr. Bruckman is a hustler, and the company he has organized can be depended upon to soon take front rank among St. Louis lighting companies. The plant will be located in the heart of the business district of St. Louis, at Tenth and St. Charles streets, and will probably be a low-tension three-wire system.

As stated above, the linemen of St. Louis are letting golden opportunities pass, as nearly all the new work in St. Louis can be made Union jobs, but when a lineman who is risking his life ten hours every day for a paltry \$2.25 and \$2.50, asks the question, "What good is a Union?" or gives such excuses as, "I belonged to a Union once, and it broke up" (he probably only attended the meeting at which he was initiated); "The Union is not run properly," etc., it is enough

to make those who have intelligence enough to see the drift of events discouraged at ever being able to thoroughly organize the electrical workers.

No. 1 held its semi-annual election on June 29th. The hall was crowded, and the temperature of the room was nearly 100, but this did not affect the enthusiasm of the members. The election resulted in some surprises, but on the whole it would be very hard to improve on the selections made. Bro. L. H. Daggett gave such excellent satisfaction as Recording Secretary, that the boys thought he could hold down the President's chair in an ideal manner, and although he had a foeman worthy of his steel in the person of Bro. Nelson Roth, he won in a walk. Harry Brittegan was elected Vice President, and Geo. Weller Recording Secretary. When it came to Financial Secretary there was only one nomination. Casey was good enough, and they let it go at that. This is the fourth time he has been elected to this most exacting office in the Union, which is sufficient recommendation for him to get a position as bank clerk. By the way, Casey, stand up and explain something. The trustees report that in looking over your books, and particularly the reports that nearly all of the entries are made in a feminine hand. Can't you at least tell us who the fair assistant is, and if congratulations are in order, you will receive them to your heart's content. Bro. Steve Garrigan was also re-elected treasurer by acclamation, which makes his fourth term.

Albert Busch, a lineman in the employ of the Missouri Electric Light and Power Co., fell from a pole on June 30th, fracturing his skull, and died before reaching the City Hospital. He had climbed to the top of the pole to put on a cross-arm, and was about to fasten his safety strap, when he was seen to fall backwards, probably overcome with heat. He was not a member of the Union.

Bro. Phil Fish has not been working for several days. Had it been a boy, he would not probably work for a month. Bro. Fish has made a host of friends since he arrived in St. Louis from St. Joseph, and has the congratulations of all.

ELECTRON.

UNION NO. 5, PITTSBURG, PA.

It is the same old story in this town. There is not much doing, but the prospects are very bright, as there are several big jobs on tap, but are not quite ready to start. Jas. Brown & Son were awarded the contract for rewiring the Allegheny City Hall at a good price, but it is hard to tell how Brown & Son will favor our Union brothers who are out of work.

We elected five new members in our Union at our last meeting, and have two more to elect to-night.

I said in my last letter that Bro. Bevington would be back with us before long. He has resigned his job, and accepted a position as foreman for Jas. Brown & Son.

The Duquesne Theater is to be rewired this season, and there will be none but Union men on the job.

Unionism in Pittsburg is quite an epidemic at present. All tradesmen are on an anxious seat owing to the new laws that the Trades Council are trying to have passed. Those who are not in at present are trying to get on dry land. I

think it will not be long until we will have things our way.

We have elected a new set of officers as follows: A. E. Eldridge, President; D. McKee, Vice President; H. McGregor, Recording Secretary; F. E. Friedman, Financial Secretary; John Haskins, Treasurer; Robt. Tate, Ins.; E. Snyder, For.; D. Brady, J. Stoffer and J. Farrington, Trustees, and myself, Press Secretary. We will meet on the second and fourth Thursday of each month at K. of L. Hall, corner Market and Third avenue. All visiting brothers are cordially invited to call on us at any time and we will make them welcome.

Bro. Jack Farrington is going to present Local No. 5 with one of his many goats. We will use him to buck the boys around to the meetings a little better. Bro. Harry Miller must have skipped back to Columbus, O., to see a party, as he has not been seen for some meetings past. Come, come, old boy, get in out of the rain.

I think as we have a great many Locals in the State of Ohio, it would not be bad to start a Local in Columbus.

Our Local is progressing nicely, and you can rest assured that things will come our way shortly.

The iron mills in this district are cutting their men from twenty-five to thirty per cent, and you can see by that what the working class want is a strong Union, and now when the electrical workers have a good one started they cannot get to the meeting or put in a word for their own interest.

As my lamps are not up to candle power, I will pull the switch and turn in.

MARTIN P. FOX, Press Sec'y.

UNION NO. 6, SAN FRANCISCO, CAL.

Being the new selection for Press Secretary to your valuable paper, I shall use my utmost endeavors to prove the ability which my friends and brothers seem to think I possess as a knight of the quill. The position being a new experience to me, I hardly know how to begin, and sincerely hope that due consideration will be shown me, should I err, or commit myself in being too partial with some of the brothers, or too severe with others.

I think it is a good plan to contribute largely about Local No. 6, by telling of its wonderful progress, the notable events which have occurred during my short membership, mingled with the honor of being duly chosen an officer in a Local of the N. B. E. W. I will, therefore, commence by giving a short description of the event of the season, viz., the outing of Local No. 6, which was held at Agricultural Park, San Jose, on Sunday, May 9, 1897. It was not only one of the most successful picnics of the season, but it was notably marked for respect, ability, large attendance, and netted Local No. 6 handsomely. Some 2,000 excursionists accompanied us to the beautiful suburb of San Jose, better known as the Garden City, which is a very appropriate name, being distinguished for its beautiful gardens, lawns, and driveways. We arrived in good season, and immediately repaired to the pleasure grounds, where we proceeded with one continual round of festivities. The wives, sisters and lady friends of the "Workers" were well represented. Two large pavilions were tastefully decorated with bunting and evergreens, where the dancing was held, and it was

interesting to behold the rivalry which existed for patronage, but it was hard to decide, as both were filled to their utmost capacity. The most interesting features of the day were the games and prizes, the former being many and the latter exceedingly numerous, the contestants were largely represented. The judges must certainly come in for some mention for the impartial way in which they rendered their decisions, as well as the praise showered on them by the Brotherhood for the decorum which was maintained by them during the most exciting contests. Through the persuasions of some of the boys, I will give you a short description of some of the characteristics of the judges. So as not to conflict with the laws of etiquette, I will begin with age before beauty, and my first will be Harry, the redoubtable Mr. Harry Edwards, superintendent of the E. L. Co. of San Jose, who is a character of no mean ability. As a big man and an entertainer he stands alone; Dame Nature has contributed liberally towards Harry's proportions, making him the more congenial, and to see him coming down the line you will hear the latest joke, and receive his best wishes for the day. Too much cannot be said for this worthy, and we all hope to see him on the top rung of the ladder. Billy Swain, another of our trio, is one of the best known boys on the coast—formerly of San Francisco, but now of San Jose, where he is interested in the Light. Last but not least, we find Bill McFarland, foreman of the Edison Light and Power Co., of San Francisco. My pen has surely lost its cunning, it is so hard to describe "Mack," and if I only possessed the gift of a caricaturist, I could certainly pen a story without words. The sobriety of manner in which he conducted his part of the programme would flatter the solemnity of a "Supreme Judge." When the gong sounded the opening of the games, there was a sudden quietness followed by the announcement of the most exciting contest of the day—the pole-climbing contest. Cheers and applause followed each contestant by his respective admirers, who numbered in the hundreds. Glory was pictured in the mind's eye of each of the climbers, as his ambition was to wear the handsome and costly emblem which was to distinguish him as the coast champion. The emblem was in the shape of a solid gold circlet, with a beautiful sparkling diamond in the center, with the words, "Champion of the Pacific Coast," engraved on the face of it, and I can assure you, brother workers, it was beautiful to look at. Bro. J. J. Cameron showed his superiority over all competitors, leaving him unquestionably the fastest climber on the coast. He made the 50-foot climb in the remarkable time of 14 4-5 seconds. Bro. J. A. Cameron, whose time was 16 2-5 seconds, was second, while Bro. Wm. Holmes, 19 seconds, was third. The country climbing contest was also won by Bro. J. J. Cameron, his time being 32 1-5 seconds, he showing himself to be an athlete of the star order. Bro. J. A. Cameron was again second, his time being 33 seconds, and Bro. Jas. Stamps was third, he having performed the trick in 35 seconds.

The most pleasing feature of the next contest was the appearance of a left-handed vaquero, who was going to teach the boys how to throw a rope, but his efforts proved futile, as he was unable

to even get his line over the wire, which was 50 feet, and he early retired, very much discomfited. Wm. Stanton of San Francisco was first, having fourteen feet slack line trailing on the ground, making a truly remarkably high cast. Bro. W. L. Bentley was second, while Jas. Casey was third. We then had a cross-arming contest, the work being done on a 30-foot pole. J. W. Williams of San Francisco, won, having done the work in 3 minutes and 45 seconds. Bro. James R. Fulton was second, having accomplished the feat in 4 minutes and 6 seconds, while James Casey, 4 minutes 10 seconds, was third. There were also foot races, obstacle and novelty races, bicycle races, etc. The gate prizes were very numerous, almost every one being presented with one. They consisted principally of articles of merchandise, many of which were donated by merchants of San Jose.

As the excursionists began to move homeward, many were the regrets at the affair not continuing longer, as it was beyond a doubt the most enjoyable of the season. Too much cannot be said for the admirable manner in which the committee of arrangements conducted the picnic. They spared no pains, and success certainly crowned their efforts. Bros. Whitfield, Hogan, Chas. Masten and others composed this committee, and those acquainted with them recognize them as some of our most energetic workers.

The 23d ult. was our election night. Bro. George Manning succeeded Bro. A. Johnson to the presidential throne, his opponent, Bro. Chas. Masten running him a very close second. The nominees for Vice were numerous, but Bro. Fred Sandefur was the choice, having been elected by a large majority. Our genial Bro. Robert Gale had no opposition for Financial Secretary, so we let him rest in peace, as we came to the conclusion that he was the right man in the right place. Bro. Hogan, the first Recorder No. 6 had, was again chosen, amid great satisfaction. Bro. Forrest was elected a Trustee for the ensuing term, which will be a long one. Bros. Cook and Barnhardt were chosen inspectors, after much opposition, and myself chosen Press Secretary, for which office I am very grateful to the brothers, and tender my inmost thanks for the honor on me thus bestowed, and earnestly hope that I shall come up to their most sanguine expectations.

Then followed the installations, which were very impressive, and Bro. David Keefe most solemnly delivered his addresses in a truly authoritative manner. The regular business of the evening then proceeded without much discussion, and our worthy President, Bro. Manning, held the chair like a veteran, and closed in the usual way. Then came the long-looked for smoker, a smoker that was a smoker; one of plenty, one of fun, such fun as can only be had by boys of our calibre. Bro. Keefe, assisted by the picnic committee, are to be thanked for its success. They were very considerate in their preparations, having laid a heavy canvas coverlet on the floor of our assembly room, to be used as a resistance against any accidental damage that might be irreparable, as the brothers laid constitution and by-laws of the N. B. E. W. on the table, and adopted some of their own for the rest of the evening,

and strange to say, mine hosts Messrs. Keefe and Gale, who heretofore have been of the most quiet disposition, turned loose, and, much to the surprise of everyone, became as hilarious as any one, and their great desire of supplying the brothers with that sparkling beverage, which tickles the throat and makes the heart feel gay, was the best plan they could have adopted, as in a very few minutes it had the desired effect of bringing out the talent of the order, which I must say cannot pass without mention. Our star performer of the evening was Bro. Jas. Donaldson. With a few extracts from the impressive play of "Richard III.," he toasted Local No. 6 with prosperity and longevity in a most loyal and impressive manner. The echo of his truly wonderful stentorian voice not only reverberated in the hall, but also in the hearts of all the brothers. Bro. Billy Barstow, besides carrying off the honors of being the highest kicker in the hall, was our musical director, and kindly officiated at the piano. He was admirably assisted by the latest "vocal effect," Bro. Bobbie Atwood, who, by the way, is possessed of a rich silver tenor, a voice which would unquestionably do justice to Her Majesty's Opera Troupe or Adelina Patti, and I gainsay that those who rank high in the vocal world would, if they heard one of Robert's choice selections, quiver with abject fear of dethronement. The chorus that so ably assisted him was of the first order, both in an amateur and a professional capacity. It was laughable to see the boys trying to kick Bro. J. J. Cameron's "cady" from a position which he made by holding it aloof with his hand, which, by the way, was some nine feet from the floor. You see by this dizzy height, that Bro. Jack is no Lilliputian. Bro. Billy Barstow, as I have mentioned, crowned himself with the honor of being the boss kicker. A delegation then tried to persuade Bro. Desmond to favor us with one of his Corkonian melodies, but bashfulness got the better of his valor, and he contented himself with a well filled dudgeon and the most obscure corner in the hall. Unfortunately, Bros. Judge, Cooney, Christ and myself had to take our leave on account of work, but I have since learned that the entertainment came to a close a little after midnight amid hearty cheers and great pleasure, mingled with the warmth of truly fraternal friendships.

We have had but one accident, the unfortunate being Bro. Wm. Kelly, who received a fall from a live cross. Fortunately, his injuries were not fatal, but they were serious enough to absent him from work for two or three months. At the present writing he is on the speedy road to recovery, and we soon hope to have him with us again.

Bro. A. Whitfield, the scapegrace, who, by the way, for a month or more has been strutting around with the vanity of a peafowl, gesticulating with the audacity of a criminal lawyer, smoking fragrant Havanas and smiling a smile full of mystery; such actions I was unable to fathom, but thanks to the good offices of some of our hawkshaws, we find that mother and son are doing well. Welcome to the little visitor, a long and prosperous life are the wishes of Local No. 6, together with congratulations to the happy dad.

Electrical work is not very promising, there being about enough to keep us going, so that I can contribute but little on this subject. So, in conclusion, I will say to those of you who have painfully subjected yourselves to the task of reading my contribution that I tender the inmost regards and best wishes of my fellow-brothers, together with a goodly share from myself.

A. E. Y.,
Press Secretary.

UNION NO. 9, CHICAGO, ILL.

No. 9 is here once more, and before I forget it I wish to correct my mistake in last month's letter. In my statement of correction regarding the crookedness at Green Bay, Wis., by a former member of No. 9, I used the name O. P. Taylor, and should have said O. H. Budd. In justice to O. P. Taylor, I wish to say that he is all right, sound and true as a new dollar, without a blemish, and any one who knows him knew at once of the mistake as soon as they read my article. The calling down which I received from some of our brothers for making so serious a mistake will prevent any repetition of such carelessness.

Chicago is still on the "pig." The men put to work by the telephone May 1st were laid off again June 1st. The telegraph companies and street railways are doing nothing. The lighting companies are making some needed repairs, and wiring a few summer gardens and bathing resorts, but that will soon be done, and the three or four extra men hired will be thankful for what few days' work they were given, and be ready to hustle again when the time comes. The alley "L" is preparing to be electrified, but as trackmen lay the third rail and feeders with an experienced foreman and two linemen to make the connections and insulate, there is no use of any one walking here from New York, New Orleans or San Francisco, expecting anything good on the alley "L."

We have just learned that one of our members has been guilty of accepting two applications, together with the amount of money which should accompany each, and then failed to present the applications to the Local, using the money for himself. This man is now on our suspended list, so we cannot prosecute him, but whenever he asks for reinstatement he will have to dance on the carpet or in the snow. No. 9 is alive, well, and not asleep, so those who desire to be crooked had better look for a soft spot; something may fall. The time has come when we have learned that it is not business to allow crookedness to go unpunished simply because he is a member of the N. B., a good fellow, etc. To make our N. B. perpetual, we must not undertake to run our business department on fraternal lines alone, nor must our fraternity be made subservient or secondary to our business. Each of these mighty forces must go hand in hand if the work of the N. B. is to continue and prosper. That business is best which is conducted in the spirit of fraternity, and that fraternity alone is valuable, which associates with itself the principle of business.

This perhaps being my last letter to the "Worker" in my official capacity as Press Secretary, I hope my successor will be more capable than I. The mistakes I have made were faults of the head and not of the heart.

C. WARREN B., Press Sec'y.

UNION NO. 17, DETROIT, MICH.

I read with regret the just complaint in the June "Worker" from No. 1 in regard to the two men who were rejected in that Union, but were received in another Union in Iowa, and then came back to flaunt their working cards in their faces and demand recognition. While I admit their grievance is a just one, I cannot agree with them that the fault lies wholly with the Union admitting them. Until there is a violation of the law they cannot be held responsible, and there was no violation in this case. The trouble lies with the law itself. It is an evil that should require the attention of our delegates at our next convention, and it is an evil that can be easily remedied. Let them formulate a law making it compulsory upon Unions to report to the head office whenever they have rejected, fined or suspended a man, together with the offense. The Grand Secretary can then make a separate list of these names, and when the locals make their reports of initiations, he can compare them with his list, and when he finds any names that are under the ban in any other Local he can order their immediate suspension until they have "squared" themselves with the Local that has a grievance against them. A rule of that kind would do more to build up our organization than all the organizers that could be sent into the field. The members of our craft are more or less of a migratory nature, and when they get into a town where it is not necessary to belong to the Union to work, they would at least treat the organization with the respect that is its due, knowing as they would that their misdeeds would follow them wherever they might go, and when they became members they would be more liable to keep their dues paid up for the same reason. In my opinion this organization will never amount to much until some such system is adopted. Under the present laws whenever a member has any petty grievance against his Local, he can drop out, and when he gets to a town where he must join to get work, he is taken in and no questions asked. He can then return to the Local in which he had the trouble, and give them the merry ha ha, with a paid up due card, and they are bound to receive him.

The parley times of the last three years have done much to expose the weak points in our constitution, and the members should get their thinking caps on between now and November and send their delegates to the convention with definite instructions to improve it. The duties of the Executive Board should be more clearly defined. Their duties should be limited to deciding disputes between Locals and interpreting the law. They should have no authority to create new laws or expense (other than that provided for in the constitution) without first submitting it to the referendum vote of the Locals.

A great deal of dissatisfaction seems to exist among the different Locals with our financial system, and while I will not attempt to offer a complete remedy, I think at least that the Grand Secretary's report should be published each month in the "Worker," instead of the present system of sending them direct to the Locals, where they are probably filed and never heard of again until another is sent in. If they were published

in the "Worker" each month it would give the members a chance to peruse and compare them at their leisure, and satisfy themselves of their correctness. This system has been adopted by some of the oldest organizations in the country with unvarying success, and I think we would do well to emulate their example.

In answer to Bro. Crabbe of No. 78, I would say that Mr. Jones probably brought back a true report about being discharged for not joining the Union, as a non-Unionist is an unknown quantity with the 'Phone Co. here. We are indeed thankful to Mr. Jones for his sympathy towards Union labor. It is a good thing to have lying around loose to deal out in allopathic doses in cases of this kind, but if he ever tried to live on it for any length of time, I have no doubt he would find it an excellent substitute for anti-fat. Unions are but human in that regard.

Now, Bro. Wheeler, I fear I have taken up so much space that I can only grant you a few words. I was sorry to see you trying to hedge on those cigars, but sooner than allow you to escape at this late date I will accept your offer and extend the time to July 1st, making it an even six months.

This will be the last letter I will write to the "Worker" for some time, as they intend to retire me to private life on July 1st. It is to be hoped that my successor will be more competent to discharge the duties of the office than

JOE BEDORE.

UNION NO. 19, CHICAGO, ILL.

As I have recently been elected Press Secretary, I will write a few lines to let the Brotherhood know that No. 19 is still in existence and has lately added a new light to our circuit, who, we believe, will be one of our best workers, as he is a man of experience in the conduct of parliamentary assemblages and has shown a willingness to help the brothers with the work of the Union. Come again, Bro. Hibert, as the Union needs a good many workers like yourself.

I am sorry to note that our previous Press Secretary did not mention our ball, given on May 1st, as we added \$45 to our treasury, and all had a good time. Thanks to Bro. Richards for his untiring efforts to make the dance a success.

I am proud to say that we have a few very good workers in our Union, but we have members who have been sleeping for the last six months, and then wonder why the business of the Union is not properly attended to. Wake up, brothers. Have a head of your own. Come to the meetings and help the officers take care of the business.

F. CONKLIN,
Press Secretary.

UNION NO. 38, CLEVELAND, O.

It is said there is no fool like an old fool. Whether this is true or not, I am unable to state, but it does seem to me as if there never was as big a fool as the working man or woman of this generation, for there is absolutely nothing pertaining to their welfare and comfort that is within the bounds of reason that they could not have, if they would demand it, and demand it in the right way, and yet they never have, and I am afraid they never will obtain what is their due, and I am sure some of them would not take it if it were offered to them. There are some 20,000,000 working people in

this country, and if they would combine in the right way they need work but eight hours per day and receive better pay than they do now. No women and children need work in sweat-shops and work-shops. Men who cared to could have all the work they wanted, and all could be happy. Then, why are not these conditions brought about? Why do not these 20,000,000 people assert themselves and obtain all this, which is theirs by right? I give it up.

I am glad to see the brothers stirring up the eight-hour movement. With eight hours as a day's work and the girls all organized, the people in the electrical business will have taken a long step towards the emancipation of the craft. Let the good work go on.

My heart aches for Bro. Birch of No. 70. Just think of 500 girls and not an organization of female electrical workers in Schenectady! Why, Brother, I have almost a mind to come down there and give you a lift myself, and if you don't get a hump on you I am not sure that I will not come; but before I do come, just say to those 500 girls that away up in Cleveland the electric girls have an organization with a membership of about forty. They have one of the finest halls in the city, have a piano, and after they are through with the business of the evening, they roll back the carpet and have a waltz or two. The brothers from No. 38 expect to visit them, and so, combining pleasure with business, they are sure to make a success of their union. Now, you go tell those 500 girls to form a Local, brace up and be independent, and they will never regret it.

No. 38 is moving along and holding her own. The linemen are arranging a scale of wages and an eight-hour system, which the contractors will sign, and then everything will be lovely along that line. Work is so dull in this city that the mosquitoes are out of a job. I guess in about three months, if work keeps as scarce as it has been the past three months, some of us will forget how to work. Then we will have plenty of time to write for the "Worker."

THOS. WHEELER,
Press Secretary.

UNION NO. 40, ST. JOSEPH, MO.

We take much pleasure in informing the "Worker" and Union men that the St. Joseph "Times," the official paper of the trades unions here, and a union label paper, has become the official paper of the city of St. Joseph. The other city papers were not in it when the bids for city printing were voted on by the Council. The Council voted unanimously to let the contract go to the "Times," and there was only one dissenting vote on the approval of the bond and confirmation of the contract. We say long live the "Times."

The boys at our city electric light plant are now considering the subject of uniforms. Some of them are in favor of it, and others are not. However, it is generally conceded that a uniform would be very appropriate for the city lighting plant boys.

One of our boys has opened up a very creditable establishment, known as the St. Joseph Motor Supply Co. He has a good location on the east side of Sixth street, just south of Edmond street, where you can find almost anything in the electrical line in the way of the latest improvements and at reasonable

prices. We are pleased to note his success, and it should be the duty of every Union man, "electrical and otherwise," to try and contribute to his building up and maintaining a good business.

The Citizens' Tel. Co., or "new company," is forging to the front, reflecting much credit on the management, and especially on the worthy president of Union No. 40, Bro. R. M. Martin, who is superintendent of the new telephone company. They now have the majority of the city telephones, and are forming connections with the towns whose business is tributary to St. Joseph, which have not been connected heretofore. They have a great many local lines now in operation. One from Cameron, Mo., and Plattsburg, Mo., to this city, having just been completed, and one now under construction from Tarkio, Mo., to this city. Every citizen of St. Joseph should be glad to assist and rejoice in the great and lasting benefit that the Citizens' Telephone Co. has done and is doing for our city.

It is "away up hot" here just now, and our inside wiremen and fan men are losing much weight through the pores of their skin, putting up wire and fans, but otherwise business is rather dull, without much prospect for the better this season, as there is no building going on here.

JAS. T. MOTTER,
Press Sec'y.

UNION NO. 45, BUFFALO, N. Y.

"Here de are again," as the clown says in the circus. Pretty old boss for the harness, but we will try and get "thar," even if we are a little slow.

The semi-annual election of officers of No. 45 came off last night, resulting in the selection of the following brethren for the several offices: President, Wm. Haley; Vice President, George Latchford; Recording Secretary, Chas. Guyton; Financial Secretary, C. E. Stinson; For., Thos. McDougal; Ins., Paul Brotz; Press Secretary, W. H. Kelly; Trustee, A. L. Mack.

This is the fourth consecutive term Bro. Haley has been elected to serve, and notwithstanding his protest and firm stand not to accept, the boys re-elected him, and overcame his objections to take the office. Bro. Haley does not object to the work incidental to the office; it is his natural modesty that actuates him, wishing to see others honored as well, but the members respect him for his dignified bearing, his firm but just ruling, and believe that the interest of the fraternity demand his retention in the office, and Bro. Haley gave way to these arguments, as he does to everything when the good of the craft is concerned.

Everything in the electrical field is quiet so far. No large work in prospect, except the Crosstown Trolley Co., which starts Monday next to construct fifteen miles of line. A large force of men will be put on, as the work must be completed by August 15th. Bro. Wm. Jefferson of No. 45 is general foreman of the work, and it is unnecessary to say that any electrical worker who has left his card at home in his Sunday coat or on the piano need not apply until he has it; and any back dates won't go at that.

The inside men are keeping fairly busy, but there are several out of employment. We have in this city fourteen electrical contractors, and eleven

of them have signed our scale of wages. This is due to the persistent efforts of the business agent. We are glad to say that these gentlemen have signed this agreement cheerfully, as they are all bright, progressive men, and appreciate reliable and intelligent workmen, such as our order aims to put into the market and protect. Those who have not signed will not be allowed to rest, and in time they will be with us as a matter of self-protection.

Bro. C. E. Stinson and wife, who have been absent on a two weeks' vacation, have just returned, looking much refreshed. Their trip was through the East, taking in Boston, New York, Brooklyn and, of course, the seashore resorts adjacent to those cities. Mr. Stinson is a telephone expert, and one of the best in Western New York. During his absence he visited Edison's works and laboratory in Jersey and was much impressed by what he saw.

And now, Mr. Editor, having recorded all of my electrical news, I cannot refrain from using a line or two more of your valuable space by asking a question. What has become of our McKinley brother of Philadelphia? (Remember, there is no political campaign on now.) I wish to ask him if the state of affairs and the condition of the laboring people at large has justified his belief that the election of a Republican President on a protective tariff platform was best for their interests? Where are the large manufacturing concerns that were to spring up, putting in \$10,000,000 to \$100,000,000, and relieving the labor markets of their surplus? What was the restoration of confidence to bring, but plenty? You have both, and where is the plenty? A cadaver fished out of the Erie canal, an aeronaut falling from a balloon, a man killed by a railway train, by a runaway, by any accident whatever up this way, is examined for papers hoping to find the advance agent of prosperity so long looked for and so long missing. On Thursday last a procession of 3,000 men formed in line and called upon the Mayor of this city, and reminded him of the promises to them a year ago, that "abundance" would follow the election of the Ohio man. Then they asked for work or bread. They told him they could not feed their wives and children on promises, and yet we were told that the hum of the worksheds would soon be heard in the land, and the smoke of chimneys of prosperous factories would obscure the sun. Such a procession was never before seen in this fair city, and if times do not mend soon, the same procession may form again, but instead of "bread" upon their banners there may be a word emblazoned thereon which will make the stoutest heart quail—"Blood."

W. H. KELLY,
Press Sec'y.

UNION NO. 55, DES MOINES, IA.

Once more I take pleasure in sending a few lines to our valuable paper.

No. 55 voted on raising the scale of wages from \$2 to \$2.25, but lost by two votes. I think it's a shame for a man to risk his life for \$2 a day.

I suppose you are aware that we have a strike on hand. The Mutual Telephone men went out. They did not go out for more money, but now they declare they won't go back unless they do get more money. It seems that Manager Bartlett came across them when they were not

all working and commenced to swear and offer criticisms on how the work was being done, which was resented by the boys, and they all quit, to a man. I think if all the men of the other companies were made up of as good material as the Mutual men, they would not be working for \$2 a day. There is only one drawback, and that is, we have not been organized six months, and could not very well ask the National Brotherhood for assistance on that account, but I believe that would not cut any figure if we went on a strike, as we have all one common interest, and that is the elevation of our fellow men. The strike is now on four days, and the company hasn't got a man to work yet. The committee of the brothers was before the directors of the company and were received very cordially. The directors said they could not very well do anything as they left all that business in Manager Bartlett's hands. They said they would be willing to pay \$2.25 or \$2.50 if the manager was. Several of the brothers have taken out traveling cards and left the city, but I would much rather have them stay and fight it out. I believe that the Union would contribute to their support rather than have them go.

Our Financial Secretary got a letter from you criticising our method of doing business. We were not altogether to blame in regards to the Hall boys. They came here and wanted to join our Union in good faith, and were vouched for by two or three brothers in good standing. You state in your letter that they told you they only paid \$2.00. They paid \$3.00. They told us they were not going to St. Louis to work. I don't see how men can be so dishonorable when they reap no benefit from it. They are not fit to be called men. We won't call them anything; we'll call them nothing. But it is a just lesson to us to be careful in the future.

JAMES MARTIN,
Press Secretary.

UNION NO. 56, ERIE, PA.

I gather from our boys in Erie that my last letter was a warm one, and they say "stir 'em up again." Well, I have looked over the field very carefully, and find that there is plenty of chance. The Brotherhood has sixty-nine Unions, and only twenty-four letters were written in the last "Worker." What is the matter with all of those Press Secretaries? Have they forgotten duties as well as their knowledge of the art of scribbling? I would be pleased to read more of the good things that some of them write. I don't see how they can forego the pleasure of seeing their names in large letters at the bottom of a good article. Now, brothers, just see how your name would look in print once in a while. Why, you ought to feel like Mark Hanna to have it thus: "JOHN SMITH, Press Secretary." Won't you feel proud?

We certainly should be proud of No. 80, the first ladies of the land to class themselves with our noble profession. I hope that fluent writer from No. 70, Bro. W. A. Birch, will gather those 500 girls in Schenectady into a Union. Think of it, a half thousand in a Union at one smash, at \$2 each; look at the available cash on hand to do business with, and we all know it takes money to do a thing or two.

The boys are all working here, and the new 'phone company is about to

start their plant. The conduits will soon be a thing of reality, instead of wind, as heretofore. I don't know where they will set poles, as the streets are literally swarming with poles at the present time. Our main thoroughfare, State street, looks like a cedar and chestnut forest. One can barely read the signs from one side of the street to the other, and they stand in bunches at the corner of Twelfth and State.

We, I mean No. 56, are going to try and have a bill passed in the Legislature to make all companies place a mark or use a different colored glass insulator to enable linemen to distinguish high voltage or dangerous wires from low tension lines. Say, don't you think it will be a good thing? Have it brought up at the convention this fall, and push her along.

I want to tell the brothers of No. 56 we will be glad to have your company at the meetings. The more the merrier. We had a hot election the last meeting in June, and the P. S. was the only one elected by a unanimous vote.

I read in a great many papers the fact that bicycles are ruining the electric street railways. If the car lines would do as they ought and not as they see fit, it would not be thus. When one has to wait ten or fifteen minutes for a car day after day, it becomes very monotonous indeed. In Erie the evils of electric cars are glaring. Going out State street on West Eighteenth the out-bound cars stand on every switch from four to five minutes. It seems the motormen get married to the end of the line, and hate to leave their first and only love, viz., the country.

A FEW DON'TS.

Don't kick if the Union is not run to suit you, when you are never there to help run it.

Don't howl about the low wages you are working for, when you don't help try and push a good thing. The Union is a good thing.

Don't come to the Union unless you have an axe to grind; you might sharpen up the meetings by bringing along a member with his hatchet.

Don't let any one tell you that we are putting all men, good and bad, on the same equality as far as wages are concerned. We are not. Every man is worthy of his hire, and we want to improve his chance in life.

Don't forget to read every letter in the "Worker." Your own Press Secretary is not the only insulator on the pole; and

Don't let any one get away that ought to be one of us.

More next time.

E. T. L., Press Sec'y.

UNION NO. 72, WACO, TEX.

News is scarce with No. 72, but all the boys are working. We had an ice cream supper at our last meeting, and the boys were out in full force. Something to eat once in a while gets the boys out. It worked well with No. 72. Try it, brothers. Some of our brothers think so long as they pay their dues, that is all that is required. I say no. If you have the Union at heart you will attend the meetings more than you do. Come out every night and we will make it interesting for you. We have splendid meetings, and you can learn something by coming.

Brothers, did you ever think how dangerous working with live wires is? You might have given it one thought, or you

may not have thought of it at all; but let me say you can't be too careful. Your humble servant and Bro. Wm. Hodges got it awfully hard—1,100 volts for fifteen seconds is what Bro. Hodges got. We had a transformer out of fix—primary and secondary in contact—and in trying to find out the trouble, Hodges was cutting the secondary. He carelessly laid his hand on a tin roof. Did it do anything to him? Well, I should say it did. When I got him loose he fell about twelve feet, and it shocked me so hard that I could not catch him. Hodges' hands were badly burned, and he was badly bruised all over, but we got off easily. Keep an eye on 1,100 volts, for if you get mixed with it, it will do you.

We will add two more members to our list at our next meeting. Keep on talking, brothers; they are falling in line.

G. R. LOCKHART,
Press Secretary.

UNION NO. 75, GRAND RAPIDS, MICH.

Well, boys, it is mighty hot here in Grand River Valley, but all of the members of No. 75 are working and enjoying the best of health. "Old Wheel Hoss" Higgins has put on a few extra men, and is putting in considerable Standard Underground Cable. The Consolidated Street R. R. Co. have just completed their work at Reed's Lake, having put in 600 incandescent lights and forty arc lights in their new pavilion, known to our citizens as Remonia. Our fire and police department are putting in a considerable underground. I think it is a hint to other companies. It is often brought up in our common council meetings to compel all companies to put their wires underground, but after one or two sessions it dies away.

Last night a big Western Union gang struck the town. They are stopping at the well-known linemen's home, the Ohio House.

Last meeting our new officers took their chairs and filled their positions to a hair in the water.

Bro. Harry Carlin of No. 17 knocked at the ante-room door last meeting night. Big Bro. Jim Blain looked him over, found him O. K. and passed him in to deposit his traveling card with No. 75. He gave us lots of news from Detroit. When the meeting was over I overheard Bro. Joe Aldrich, chief lineman for the Fire Department, tell Bro. Carlin to come and work for him, and so Harry has a good position.

We had a splendid time at our smoker, and all the boys seemed pleased. I, for one, would be in favor, during the warm weather, of turning these smoking sessions into what is known in our Grand River Valley as "High German" sessions.

D. B. M., Press Secretary.

The West Side Lighting Co. of Los Angeles has purchased the exclusive right to the Edison three-wire system. When the deal is completed the name of the West Side Co. will be changed to the Edison Electric Light Co. The company has entered into a contract with the Southern California Power Co. for 1,000-horse power, to be made available by February 1, 1898. This power company is putting in a tremendous plant near Redlands in the canon of the Santa Anna River, and wires will transmit the power to Los Angeles, a distance of 75 miles.

Directory of Local Unions.

(Secretaries will please furnish the necessary information to make this directory complete. Note that the time and place of meeting, the name of the President, the names and addresses of the Recording and Financial Secretaries are required.)

No. 1, St. Louis, Mo.—Meets every Tuesday at s. e. cor. 21st and Franklin avenue. L. H. Daggett, Pres., 1220 St. Ange av.; Geo. Weller, R. S.; J. P. Casey, F. S., 202 Spring av.

No. 2, Milwaukee, Wis.—Meets every Friday at 518 State st. W. A. Gerardeu, Pres., 457 Broadway; Chas. Herman, R. S., 1805 Walnut st.; Joe Harris, F. S., 448 Russell ave.

No. 3, Denver, Col.—E. L. Layne, Pres., 1011 19th st.; Geo. P. Manning, Sec., 1633 Lawrence st.

No. 4, New Orleans, La.—Meets 1st and 3d Tuesdays at Carondelet and Perdido sts. J. McGregor, Pres., 2111 Rousseau st.; C. M. Hale, R. S., 630 St. Mary st.; R. B. Joyce, F. S., 331 S. Bassin st.

No. 5, Pittsburg, Pa.—Meets 2d and 4th Thursdays at K. of L. Hall, cor. Market and Third ave. A. E. Eldridge, Pres.; 156 Devilliers st.; H. McGregor, R. S.; Nesbit & Allequippa sts.; F. E. Friedman, F. S., 75 Liberty st., Allegheny.

No. 6, San Francisco, Cal.—Meets 2nd and 4th Wednesdays at Forester's Hall, 20 Eddy st. G. P. Manning, Pres., 1812 Geary st.; C. J. Hogan, R. S., 2316 Bryant st.; R. P. Gale, F. S., 1004 Larkin st.

No. 7, Springfield, Mass.—Meets every Wednesday at room 14, Barnes Bldg. Wm. Gregg, Pres., 107 Hancock st.; T. H. Bowen, R. S., 26 Hubbard av.; M. Farrell, F. S., 59 Broad st.

No. 8, Toledo, O.—Meets every Friday at Wallahalla Hall, 317 Monroe st. P. Crowley, Pres., 850 Germania st.; S. M. Strub, R. S., 1135 Peck st.; Fred Lewis, F. S., 352 Missouri st.

No. 9, Chicago, Ill.—Meets every Saturday at 106 E. Randolph st. A. F. Snider, Pres., 343 State st.; L. Christenson, R. S., 1043 S. Irving ave.; C. W. Beach, F. S., 5812 Sherman st.

No. 10, Indianapolis, Ind.—Meets 1st and 3rd Monday at 29½ W. Pearl st. John Berry, Pres., care of headquarters Fire Dept.; E. Bussie, R. S., 487 N. Illinois st.; E. C. Hartung, F. S., Rooms 5-7 Cyclorama Bldg.

No. 11, Terre Haute, Ind.—Meets 2d and 4th Tuesdays at 8th and Main sts. C. D. Updegraff, Pres., 529 S. Ninth st.; M. Davis, R. S., 918 N. 9th st.; W. H. Schaffer, F. S., 114 N. 14th st.

No. 12, Evansville, Ind.—Meets every Tuesday at cor. 3rd and Sycamore st. Harry Fisher, Pres., 200 Clark st.; A. L. Swanson, R. S., 1054 Water st.; A. N. Grant, F. S., 202 Clark st.

No. 14, Memphis, Tenn.—Chas. E. Blake, Pres., 70 Mulberry st.; J. A. Myies, Sec., 207 De Soto st.

No. 15, Philadelphia, Pa.—Meets every Tuesday at 711 Spring Garden st. E. G. Boyle, Pres., Penn. Farmers' Hotel, 14 and Callowhill sts.; E. Hennessy, R. S., 1518 French st.; Chas. T. Lang, F. S., 829 Race st.

No. 16, Lynn, Mass.—Meets at General Electric Band Room, 9½ South st. Jas. Robson, Pres., 46 W. Neptune st.; S. W. Perkins, R. S., 6 Allen's Court; E. J. Malloy, F. S., 86 Cottage st.

No. 17, Detroit, Mich.—Meets 1st and 3d Thursdays at Room 8 Hilsendegen Block. W. J. Donovan, Pres., 112 Chestnut st.; Geo. H. Brown, R. S., 50 Lewis st.; P. F. Andrich, F. S., 369 Chene st.

No. 18, Kansas City, Mo.—Meets 2d and 4th Fridays at 1117 Walnut st. J. J. Lynch, Pres., 716 Delaware st.; C. F. Drollinger, R. S., 326 Garfield av.; Kansas City, Kas.; J. H. Lynn, F. S., 2215 Woodland ave.

No. 19, Chicago, Ill.—Meets 1st and 3d Tuesdays at 6512 Cottage Grove av. M. J. Sullivan, Pres., 4951 Princeton av.; G. W. Richard, R. S., 5610 S. Halsted st.

No. 21, Wheeling, W. Va.—Meets 1st and 3d Tuesdays at Trades Assembly Hall. H. F. Wyse, Pres., Box 111; C. L. Ullery, R. S., Box 111; W. J. Clark, F. S., McClure House.

No. 22, Omaha, Neb.—Meets every 1st and 3d Wednesdays at Labor Temple, 17th & Douglas st. J. W. Waters, Pres., 2211 Pierce st.; M. J. Curran, R. S., 1814 St. Mary's av.; W. J. Wales, F. S., 1804 Farnum st.

No. 23, St. Paul, Minn.—Meets 2d and 4th Fridays at Labor Hall, 3rd and Wabasha sts. Jno. O'Donnell, Pres., 4th and Wabasha sts.; Thos. O'Toole, R. S., 333 E. 6th st.; F. Volk, F. S., 175 W. 6th st.

No. 24, Minneapolis, Minn.—Meets 1st and 3rd Wednesdays at 34 and 36 6th st. S. Geo. Heilig, Pres., 18 9th st.; L. R. Stevens, R. S., 18 Western av.; A. Aune, F. S., 3129 Longfellow av.

No. 25, Duluth, Minn.—Meets 2d and 4th Thursdays at room 6 Banning Bldg. R. Thayer, Pres., 24 Third ave. W.; L. P. Runkle, R. S., 17 Norris Bldg.; Jas. F. Owens, F. S., 414 E. 1st st.

No. 26, Washington, D. C.—Meets every Monday at 628 Louisiana av. Jos. Patterson, Pres., 1127 12th st. N. E.; T. E. Hessman, R. S., 712 13th st. N. W.; R. F. Metzger, F. S., 509 11th st. N. W.

No. 27, Baltimore, Md.—Meets every Monday at Hall, cor. Payette and Park avs. C. F. Leitz, Pres., 506 S. Puleski st.; J. F. Jones, R. S., 1414 Mosher st.; F. H. Russell, F. S., 1408 Asquith st.

No. 28, Louisville, Ky.—Meets 1st and 3d Tuesdays at Beck Hall, 1st st. near Jefferson. Calvin Beach, Pres., 1030 W. Market st.; Ed. Herpt, R. S., 607 Magnolia st.; Jno. C. Deibel, F. S., 418 15th st.

No. 29, Atlanta, Ga.—Meets every Sunday at 61½ Alabama st. Geo. Foster, Pres., 100 Walker st.; D. J. Kerr, R. S., 114 Richardson st.; Geo. Raymer, F. S., 121 Rhodes st.

No. 30, Cincinnati, O.—Meets 1st and 3d Mondays at 136 E. Court st. Thos. Speilissy, Pres., 331 W. 7th st.; H. C. Genrich, R. S., 305 Broadway; J. F. Harmuth, F. S., 2158 Vernon st.; Clifton Heights.

No. 31, Jersey City, N. J.—Meets 2d and 4th Thursdays at 116 Newark av. Thos. Watson, Pres., 513 Jersey av.; F. J. Anderson, R. S., 228 Washington st.; T. L. Jones, F. S., 137 Grand st.

No. 32, Burlington, Ia.—G. M. Cunningham, Pres.; E. T. Collins, Secy., New McCutcheon House.

No. 35, Boston, Mass.—Meets every Wednesday at Well's Memorial Hall, 967 Washington st. J. Larkin, Pres., 13 Cambridge st.; D. McGilivray, R. S., 7 Humboldt Park, Roxbury; R. H. Bradford, F. S., 268 River st., Cambridge.

No. 36, Sacramento, Cal.—J. A. Crombach, Pres., 1613 4th st.; E. G. Fletcher, R. S., 505 J st.; G. E. Flanagan, F. S., 1315 K st.

No. 37, Hartford, Conn.—Meets 1st and 3d Fridays at Central Union Labor Hall, 11 Central Row. M. F. Ocus, Pres., 63 Hawthorne st.; D. F. Cronin, R. S., 49 Windsor st.; C. E. Byrne, F. S., 16 John st.

No. 38, Cleveland, O.—Meets every Thursday at 393 Ontario st. R. M. Ross, Pres., 59 Colgate st.; J. C. Coolican, R. S., 813 Detroit st.; C. C. Reid, F. S., 60 William st.

No. 39, Providence, R. I.—Meets 1st and 3d Mondays at Phoenix Bldg, 157 Westminster st. H. B. Kelly, Pres., 1950 Westminster st.; M. J. Carder, R. S., 40 Wilson st.; G. D. Higgins, F. S., 8 Carpenter st.

No. 40, St. Joseph, Mo.—Meets every Monday at north-west corner 8th and Locust sts. "Brokaw's Hall." R. M. Martin, Pres., 1702 N. 3d st.; Wm. Dorsel, R. S., 1710 Calhoun st.; F. A. Dunn, F. S., 426 Edmond st.

No. 41, Philadelphia, Pa.—Geo. A. Neal, Pres., 3626 Wharton st.

No. 43, Syracuse, N. Y.—Meets 1st and 3d Thursdays at Greenwald's Hall, cor. Mulberry and Water st.; Wm. Mack, Pres., care W. U. T. Co.; A. D. Donovan, R. S., 310 Niagara st.; Geo. W. Porter, F. S., 921 Milton av.

No. 44, Rochester, N. Y.—Wm. A. Breese, Pres., 56 Fourth st.; J. Guerinot, R. S., 120 Campbell st.; F. Fish, F. S., 123 State st.

No. 45, Buffalo, N. Y.—Meets 1st and 3d Saturdays at Council Hall. Wm. Haley, Pres., 125 Erie st.; Chas. Guyton, R. S., 124 Swan av.; C. E. Stinson, F. S., 298 Carolina st.

No. 46, Lowell, Mass.—M. J. Burns, Pres., Police Dept.; Thos. Dalton, R. S., 368 Concord st.; H. E. Maguire, F. S., 95 Christian st.

No. 47, Worcester, Mass.—C. C. Coghlin, Pres., 113 West st.; Geo. R. Lincoln, R. S., Millbury; Thos. Reed, F. S., 61 Myrtle st.

No. 48, Ft. Wayne, Ind.—Meets 1st and 3d Fridays at cor. of Main and Clinton sts. R. Bartel, Pres., Hotel Tremont; A. J. Lathouse, R. S., 148 Wells st.; G. B. Taylor, F. S., 31 Douglas av.

No. 49, Bloomington, Ill.—Meets 2d Monday at Trades Assembly Hall. C. F. Snyder, Pres., Box 328; Guy Carlton, R. S., East and Market sts.; W. C. Gorcey, F. S., 409 S. Madison st.

No. 51, Scranton, Pa.—Jas. Harding, Pres., 601 Meridian st.; P. Campbell, R. S., 1210 Irving av.; Ruben Robins, F. S., 1223 Hampton st.

No. 52, Danvers, Ia.—Meets 1st and 3d Tuesdays; A. L. Wheeler, Pres., Atlantic Hotel; J. H. Clark, Sec., 215 Iowa st.

No. 53, Harrisburg, Pa.—C. A. Swager, Pres., 115½ Market st.; Jas. Emmeringer, R. S., 25 N. 15th st.; C. Anderson, F. S., 46 Summit st.

No. 54, Peoria, Ill.—Meets 1st and 3d Wednesdays at 20 Main st. H. Schaefer, Pres., 219 W. Jefferson st.; Harry Dunn, R. S., East Peoria; L. C. Crawley, F. S., 115 Washington st.

No. 55, Des Moines, Ia.—Meets every Saturday at Trades Assembly Hall. L. M. Steadman, Pres., 311 W. 4th st.; E. T. Purcell, R. S., Gratis st. S. S.; Wm. Leedon, F. S., 609 Mulberry st.

No. 56, Erie, Pa.—Meets 1st and 3d Wednesdays. J. P. Hunlon, Pres., 23 N. Park Row; E. T. Indermill, R. S., general delivery; O. J. Oleson, F. S., 29 W. 8th st.

No. 57, Salt Lake City, Utah.—R. Blair, Sec'y, care of Citizens E. L. Co.

No. 60, San Antonio, Tex.—Meets 1st and 3d Saturdays, Meyers' Hall Alamo Plaza. Martin Wright, Pres., 14 Romania st.; J. P. Gittinger, R. S., 326 Pest st.; W. F. Hendricks, F. S., 1001 Burnett st.

No. 61, Los Angeles, Cal.—C. P. Lofthouse, Pres., 746 San Julian st.; F. W. Messacer, R. S., Station A; W. K. Klugston, F. S., 119 Kern st.

No. 62, Kalamazoo, Mich.—A. D. Ayres, Pres., 534 S. Burdick st.; L. Bellman, R. S., 540 Pine st.; G. E. Tift, F. S., 324 Sarah st.

No. 63, Tampa, Fla.—Theo. Glinn, Pres., Ft. Tampa City; W. F. Crofts, R. S., lock box 264; Arthur D. Henry, F. S., box 220.

No. 65, Butte, Mont.—Meets 2d and 4th Wednesdays in Good Templars Hall, W. Broadway. J. R. Dutton, Pres., 601 Placer st.; D. J. Winslow, R. S., 103 E. Granite st.; A. G. Ellerick, F. S., Gen'l Delivery.

No. 60, Houston, Tex.—Meets 1st & 3d Mondays. G. O. Wood, Pres., 1214 Providence st.; A. H. Stelle, R. S., 12 Main st.; W. V. Fisk, F. S., care Telephone office.

No. 67, Quincy, Ill.—Meets 2nd and 4th Wednesdays at Trades Assembly Hall, So. 5th st. Wm. Wagner, Pres., 517 Sycamore st.; E. W. Nessler, R. S., 523 Maiden Lane; D. M. Mallinson, F. S., 1120 Vine st.

No. 68, Little Rock, Ark.—G. W. Wilson, Pres., care Brown Machine Co.; C. J. Griffith, R. S., cafe L. R. Tract & El. Co.; C. M. Milham, F. S., 309 W. Markham st.

No. 69, Dallas, Tex.—Meets 1st and 3rd Saturdays at Labor Hall. Chas. Trotter, Pres., Oak Cliff; J. H. Leach, R. S., 196 Ganost.; F. G. Montgomery, F. S., 190 Collins st.

No. 70, Schenectady, N. Y.—Meets 2d and 4th Tuesdays at Trades Assembly Hall, cor. Centre and State sts. F. Litzendorf, Pres., Crane st., Mt. Pleasant; W. A. Birch, R. S., 608 Liberty st.; J. D. Betting, F. S., 626 Villa road.

No. 71, Galveston, Tex.—Meets 2d and 4th Wednesdays. J. T. Payne, Pres., 1314 Centre st.; F. J. Schallert, R. S., 2514 Church st.; G. L. Garrett, F. S., 2108 Av. L.

No. 72, Waco, Tex.—Meets 2d and 4th Wednesdays at Labor Hall. Wm. Hodges, Pres., 728 S. 6th st.; Geo. Lockhart, R. S., 800 S. 6th st.; Jos. Hodges, F. S., 728 S. 6th st.

No. 73, Spokane, Wash.—Meets 1st and 3rd Thursdays at Oliver Hall, 336½ Riverside av. Gus Benson, Pres., 504 Nichols Block; T. H. Deuter, R. S., box 635; C. C. Van Inwegen, F. S., 107 Howard st. S.

No. 74, Fall River, Mass.—Meets every Monday at cor. Main and Bedford sts. W. I. White, Pres., 59 Bowen st.; Jas. Murphy, R. S., 100 4th st.; Thos. Bailey, F. S., 135 Snell st.

No. 75, Grand Rapids, Mich.—Meets 2d and 4th Mondays. Wm. Orr, Pres., 176 Chalm st.; F. Gunnell, R. S., care G. R. Light & Power Co.; Geo. Higgins, F. S., 263 Terrace av.

No. 78, Saginaw, Mich.—Jas. Hodgins, Pres., 308 N. Franklin st.; John Strachan, R. S., 336 N. 2nd st.; Chas. Ross, F. S., P. O. box 225, E. S.

No. 79, Austin, Tex.—Meets every Thursday night at Maccabee Hall. J. L. Vorkafer, Pres., 126 San Jacinto st.; Chas. J. Jackson, R. S., Mayor's office; B. Y. Lovejoy, F. S., 109-111 E. 7th st.

No. 80, Cleveland, O.—Mac Patterson, Pres., 54 Gordon av.; Mayme Stanton, R. S., 116 Herman st.; Alice Smith, 186 Elton st.

The Commonwealth Electric Light Co. of Chicago has been organized with a capital of \$500,000. The incorporators are W. K. Partison, R. W. Robinson and Thos. Kane.

It is reported that the Siemens & Halske Electric Co. of America has consolidated with the Pennsylvania Iron Co. of Pittsburgh. The total capital of the new concern will be \$5,000,000.

Plans are about completed for expending the \$20,000 appropriation recently made by the Legislature to the Michigan University for an electric light plant. The money will be used for two 60-kilo watt dynamos for lighting purposes, and one 500-volt dynamo for power purposes.

After considerable delay the Lake Forest City Council has granted right of way to the Bluff City Electric Street Railway Co. of Waukegan, which projects a trolley line to Chicago. This completes their line from Waukegan to Cook County, most of it having been secured earlier in the year. It is now expected that the road will soon be extended south from its present terminus in North Chicago.

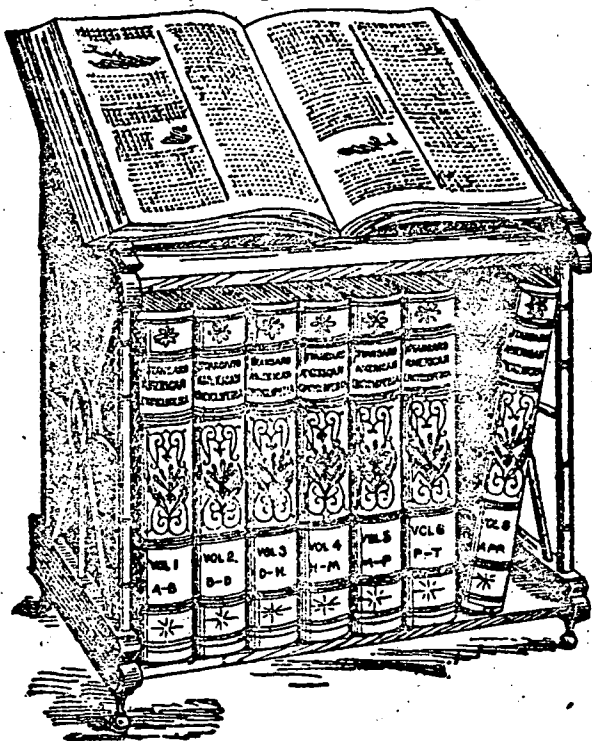
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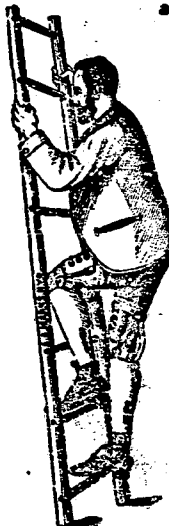
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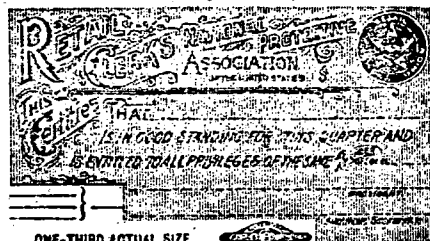
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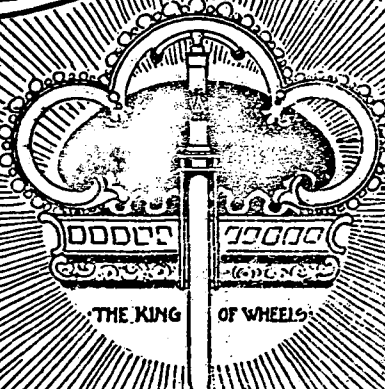
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